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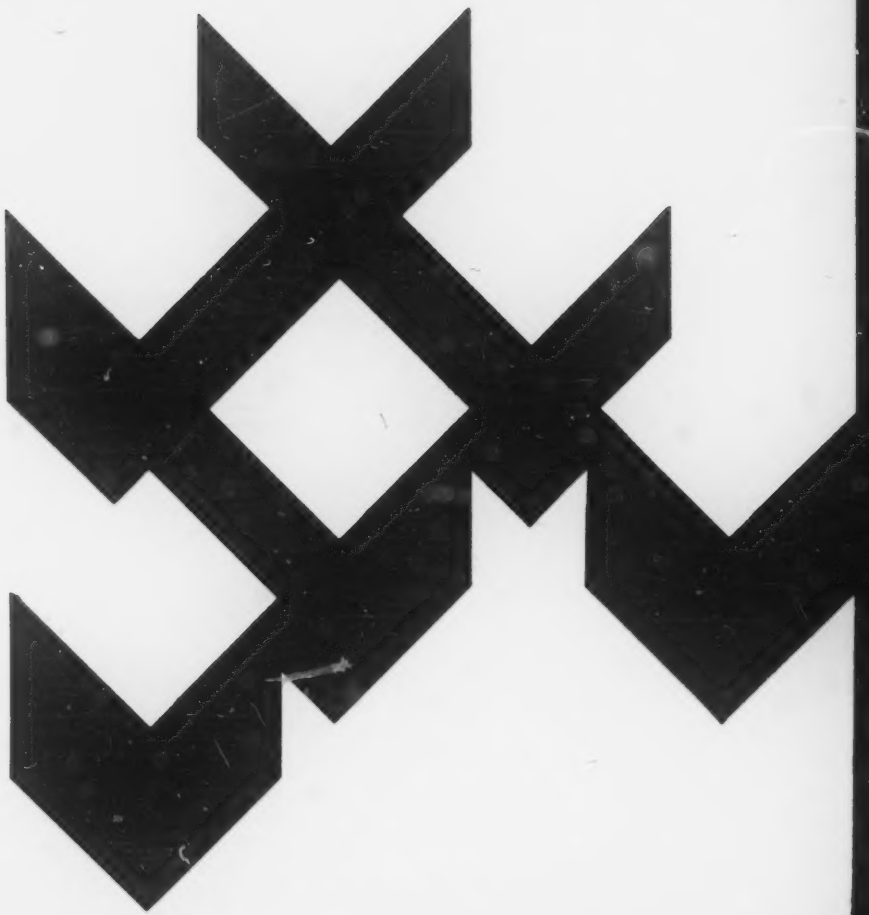
By Douglas Kirby, Ph.D.
and Cynthia S. Waszak
with Julie Ziegler

An Assessment of Six School-Based Clinics: Services, Impact and Potential

Edited by Patricia Donovan

Center for Population Options



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Center for Population Options
The Center for Population Options (CPO) is a nonprofit educational organization dedicated to improving the quality of life for adolescents by preventing too-early childbearing.

CPO's national and international programs seek to improve adolescent decision-making through life planning and other educational programs, to improve access to reproductive health care, to promote the development of school-based clinics, and to prevent the spread among adolescents of HIV and other sexually transmitted diseases.

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Douglas Kirby

CHAPTER 1

Executive Summary: Utilization, Impact, and Potential of School-Based Clinics

Since the first school-based health clinic opened in a Dallas high school in 1970, school-based clinics have been seen not only as a means of providing basic health care to medically underserved teenagers, but also as a promising way of addressing some of the increasingly intractable and complex health and social problems facing young people, particularly unintended pregnancy.*

Today, there are 150 school-based clinics (SBCs) operating in middle, junior, and senior high schools in most major cities as well as in many rural areas, usually with widespread public support.** These clinics, which often serve low-income, predominantly minority youth with limited access to other sources of health care, provide a wide range of medical and counseling services. Most provide primary health care, physical examinations, laboratory tests, diagnosis and treatment of illness and minor injuries, immunizations, gynecological exams, pregnancy testing and counseling, referral for prenatal care, birth control information and referral, nutrition education, weight reduction programs and counseling for substance abuse. Some offer prenatal care on site; a few dispense contraceptives and provide day care for children of students.

School-based clinics are well used by students in the schools they serve. On average, about half of the student body enrolls in the SBC—in some schools the proportion is much higher—and eight in 10 of those enrolled actually use the clinic's services. For about half of enrolled students, school-based clinics are their sole or primary source of health care (5).

As the SBC movement stands on the brink of its third decade, however, it is appropriate to assess more definitively than ever before the actual impact of these clinics on students' access to medical care and on their health-related behavior, and to gain a better understanding of the potential impact of school-based clinics and methods of enhancing their effectiveness and reaching that potential. Perhaps excitement over the promise of school-based clinics led to unrealistic expectations of what these clinics, by themselves, could accomplish, particularly in influencing students' risk-taking behavior.

With these objectives in mind, the Center for Population Options (CPO) in 1984 launched a major project designed to evaluate a diverse group of clinics located in different parts of the country. The project sought to assess the students' utilization of clinic services and the clinics' impact on use of medical services generally. It also sought to determine what, if any, effect the clinics had on students' absenteeism, illegal drug use,

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* The National Research Council of the National Academy of Sciences, for example, has called comprehensive health clinics in schools with large, high-risk populations a most promising approach to pregnancy prevention (1). Similarly, the Office of Technology Assessment has recommended the development of comprehensive school-based clinics in order to reduce high-risk pregnancies among teenagers (2). Such prominent organizations as the National Parent Teacher Association, the American Academy of Pediatrics, the National Education Association, the American College of Obstetricians and Gynecologists and the Association of School Nurses have publicly supported school-based clinics.

** Polls in Michigan and Oregon, for example, show that 77-80 percent of adults favor school-based clinics and that support is highest among parents of public school children (3). And nearly four out of five adults surveyed in North and South Carolina favor the establishment of school-based clinics (4).

alcohol consumption, cigarette smoking, and unprotected sexual intercourse, focusing particular attention on students' contraceptive use and the clinics' success in preventing unintended pregnancies. Finally, the study sought to examine clinics' potential to better meet their desired objectives and to identify ways they could do so. The findings of this five-year research project, are presented in this report. Included in this executive summary is a brief review of the principal factors that contributed to the development of school-based clinics and the current status of the school-based clinic movement, and following the summary of the findings, a discussion of their implications, and recommendations for making clinics more effective.

School-Based Clinics: A New Approach

Public schools have been involved in efforts to improve student health since before the turn of the century. Until recently, however, school health services were largely limited to health inspection, screening and assessment, and first aid provided by nurses, who, because of nursing practice regulations were unable to provide direct medical care or to prescribe and dispense medications.

Student health services in some schools began to change in the 1960s as a result both of the growing recognition that adolescents, in particular, needed better access to health care and of an increased commitment on the part of government and private foundations to the provision of health and social services to disadvantaged populations. Efforts to develop innovative health programs accelerated in the succeeding 10-20 years in response to several major developments:

- A dramatic increase in the number of single-parent households. In 1985, 22% of families with children under 18 were headed by a single parent (6). Twenty-four percent of children under age 18 lived in single-parent households; another 3% (1.9 million children) lived with neither parent (7).
- A large increase in the number of children living in poor families. More than 20% of all children under the age of 18 now live in families whose income is below the federal poverty level ($12,100 for a family of four) (8), and some 44% of these children live in families with incomes below half of the poverty standard (9).
- Rapid increases in health care costs at a time when the number of families with no medical insurance also increased. In 1984, 14% (4.5 million) of all 10-18 year olds had no health insurance (10).
- An increase in public awareness of and concern about the country's high rates of teenage pregnancy. About one million teenage girls become pregnant in the United States each year; some 416,000 of these teens terminate their pregnancies by abortion and roughly 480,000 give birth.* (The remaining pregnancies are miscarried or result in stillbirths (11).) These rates are significantly higher than rates in other western industrialized countries, despite similar levels of adolescent sexual activity (12).
- Widespread use of illegal drugs among adolescents. Although drug use appeared to have declined slightly, at least among high school seniors (13), it remains a serious problem, as does consumption of alcohol among teenagers.** Furthermore, the emerging crack problem may have serious, but as yet not fully understood, consequences for adolescents.

In the face of these developments, comprehensive health clinics—located on school campuses, staffed by health professionals trained in working with teenagers, and able to provide services at nominal or no charge—came to be viewed as a promising approach to addressing the increasingly complex health-care needs of adolescents. Now, the threat posed by AIDS (acquired immunodeficiency syndrome), along with rising rates of other

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* These births typically have a negative impact on the teen mothers' lives in terms of education, job opportunities and the ability to stay off of welfare, and they also have a serious impact on society: Three federal poverty programs—Aid to Families with Dependent Children (AFDC), food stamps and Medicaid—together spend more than $19 billion annually to help families in which the mother gave birth as a teenager (14).

** About 40% of all teenage deaths are the result of automobile accidents (15), many of which involve teenage drivers who have been drinking. About one-quarter of eighth graders and more than a third of tenth graders report having had five or more drinks on at least one occasion (16).

sexually transmitted diseases (STDs) among teenagers, has added new urgency to the effort to provide adolescents with information to help them avoid risk-taking behavior, together with medical services to identify and address health problems that arise as a result of such behavior.

The appeal of school-based clinics has been bolstered by the realization that many teens do not receive adequate medical attention and are forced to rely heavily on more costly services of hospital emergency rooms when problems arise. These emergency rooms can treat serious illnesses and injuries, but do not provide on-going preventive medical care or health education and do not treat emotional and psychological problems unless they are severe. Some 15% of 16- and 17-year-olds have no regular source of medical care (17).

To a great extent, this inadequate health care is probably a consequence of the high cost of medical care and the widespread lack of insurance. However, it also reflects the fact that scheduling doctor visits has become a problem in this era of single-parent and two-working-parent households. Doctors' offices and health clinics normally are not open in the evenings and on weekends, and working parents often have difficulty arranging to leave their jobs to take their children to a doctor during the day. Furthermore, while increasing numbers of pediatricians have had some training in adolescent medicine, teenagers are often treated by physicians, whether pediatricians or adults' doctors, who are ill-equipped to deal with many of the sensitive issues that concern adolescents, particularly those relating to sexual development.

School-based clinics that provide comprehensive primary health care can address many of these problems of access because they do not require parents to arrange to take their child to a doctor; they offer confidential* services free or at low cost, often without a prearranged appointment; and they employ nurse practitioners, doctors and counselors who are skilled at identifying and treating physical as well as emotional and psychological problems that students often face.

School-Based Clinics in 1989

According to CPO's latest survey of school-based clinics, conducted in the spring of 1989 by its Support Center for School-Based Clinics, there are currently 150 school-based clinics operated by a total of 90 programs, most of which are traditional providers of medical care—hospitals and medical schools, public health departments, nonprofit organizations, and community health clinics; however, an increasing number of clinics (currently 20%) are operated directly by school districts (see Table 1.1). The number of clinics has increased five-fold since 1983 (18).

TABLE 1.1
Percentages of school-based clinics (N=130) by type of sponsoring agency, according to recent survey results

Type of agency	Percentage
Hospital/medical school	26
Nonprofit organization	19
Community clinic	12
Public health clinic	23
School system	20

Clinics are now located in 32 states and in 91 communities. Most operate in senior high schools, although 14% are in junior high or middle schools. Schools with school-based clinics have an average enrollment of about 1300 students, although the size of the student body ranges from 224 to 3627. On the average, 48% of students in clinic schools are enrolled in the clinic and thereby eligible to receive services, and 80% of those enrolled use the clinic at some point during the year.

A majority of clinics are open at least 40 hours a week, although the proportion declined from 76% in 1988 to 66% in 1989. Almost 90% of clinics operate every weekday, and more than half remain open during the summer, although these percentages also dropped somewhat from 1988 to 1989. These declines reflect decreases in funding, which force clinics to use fewer staff and to shorten their hours of operation [see Box: top of next page].

* Virtually all clinics require students to have parental consent to enroll in the program; some seek blanket permission to provide all services, others give parents the opportunity to indicate which services their children may, or may not, receive. State law, however, often permits certain services, such as family planning, treatment for sexually transmitted diseases (STDs) and drug and alcohol abuse counseling, to be provided without parental consent, and some clinics do not require parental consent for these services.

FUNDING FOR SCHOOL-BASED CLINICS

School-based clinics are funded by a variety of public and private sources. In 1989, about two-thirds of SBC funding came from public sources: the states accounted for 19% of total funding; cities and counties contributed 16%; and the Maternal and Child Health Block Grant also provided about 16% of clinic funding. Medicaid, the Early and Periodic Screening, Diagnosis and Treatment (EPSDT) program and the Community Health Services Block Grant each provided between 2 and 4% of total funding. School districts contributed about three percent.

Foundations are virtually the only source of private funding for school-based clinics. In 1989, foundations provided 31% of total funding, down from 41% the previous year. Insurance payments and patient fees each accounted for less than one percent of clinic funding.

Most clinics were funded by at least two sources, and about half by at least three. Clinics also received in-kind contributions, primarily in the form of facilities, utilities and maintenance. The value of in-kind support ranged from $4,700 to $137,000 and averaged about $35,000.

SBC operating budgets averaged $125,000 in 1989, although they ranged from $100,000 to $313,000. As would be expected, the average varied substantially depending on the clinic's hours of operation. Clinics open less than 20 hours a week had an average operating budget of $43,000, while a clinic open 40 hours had an average budget of $142,000. Clinics that had been open less than a year had higher budgets than those that had been operating for three years, reflecting higher one-time start-up costs.

Clinic Users

Fifty-nine percent of all clinic users are black (up from 49% in 1988). This reflects the fact that school-based clinics typically serve low-income areas, which tend to be disproportionately populated by minorities. About one-quarter of users are white, and 12% are Hispanic. On the average, 38% of clinic users are male. Males are typically a difficult group to reach with adolescent health services. One recent study, however, found that school-based clinics saw a larger proportion of males than did other adolescent health programs (19). About one-third of school-based clinic users have no health insurance.

Most clinics limit eligibility for services to students enrolled in the school in which they are located, but some also are open to dropouts (16%), children of students (16%), other family members of students (11%), and adolescents in the broader community (9%).

Clinic Services

The average clinic serves 59 students and handles about 183 visits each month. Table 1.2 shows the broad array of services that school-based clinics provide. For the most part, this list has changed little in the past few years, but there have been some notable changes in the proportion of clinics offering certain services, particularly in the area of reproductive health care: only 15% currently dispense contraceptives, compared with 28% in 1986, and the proportion that prescribe contraceptives declined from 52% to 40% over the same time period. Whereas, 20% of clinics referred students to family planning agencies for birth control in 1986 (20), almost three quarters do so now. It thus appears that despite widespread public support for providing contraceptives in school-based clinics,* few of the clinics that have opened in recent years have decided to dispense contraceptives.

The proportion of clinics offering prenatal care also has dropped markedly, from 47% in 1987 (21) to 30% in 1989; however, 94% of clinics refer pregnant students for prenatal services. There have been smaller declines in the past year in the percentages of clinics providing drug and substance abuse counseling, weight reduction programs, gynecological exams and mental health and psychosocial counseling. These declines are not considered significant, however, because newer programs tend to add these programs after the first year or so of operation, and the decline reflects the addition of many new programs.

Past Research on Clinic Effectiveness

This statistical information provides valuable data on how school-based clinics are currently operating and whom they are serving, but it does not assess clinics' effectiveness in delivering services and in enabling students to avoid unplanned pregnancies and risk-taking behaviors.

Perhaps because most of the growth in school-based clinics has occurred in the last few years, there has been little research on the clinics' impact on student health and

* A 1988 Harris Poll, for example, indicates that 80% of adults favor making birth control information and contraceptives available in school-based clinics (22).

TABLE 1.2
Percentages of school-based clinics (N=92) currently providing various services, according to recent survey results

Services provided	Percentages
Medical services	
Sports/work physicals	98
Diagnosis and treatment of minor injuries	97
General primary health care	96
Lab tests	96
Prescribe medication	96
Assessment or referrals to local physicians	93
Assessment or referrals to community health care	92
General physicals	91
Immunizations	89
Chronic illness management	75
Dispense medication	74
EPSDT screening	54
Dental services	34
Pediatric care for infants	29
Counseling/educational services	
Health education	98
Nutrition education	96
Mental health/psychosocial counseling	89
Pregnancy counseling	83
Sexuality education in class	83
Weight reduction programs	79
Family counseling with student and parents	62
Drug/substance abuse programs	61
Job counseling	25
Reproductive health and family planning services	
Referrals for prenatal care	93
Pregnancy tests	88
Counseling on birth control methods	85
Diagnosis/treatment of STDs	78
Gynecological exams	77
Referrals for birth control methods and exams	72
Follow-up for birth control users	71
Exams for selected birth control methods	55
Prescriptions for birth control methods	43
Prenatal care on-site	28
Dispensation of birth control methods	12
Other activities	
AIDS education program in class	38
AIDS education program in clinic	34
Day care for children of students	15

behavior. However, studies that have been done provide some evidence that clinics can have a positive impact in this area. For example, a student survey conducted two years after the opening of a school-based clinic in a Kansas City, Missouri high school found that 55% of clinic users who were sexually active used some form of birth control, compared with only 35% of sexually active students who did not use the clinic (23). An analysis of the effect of school-based clinic use on adolescent contraceptive behavior among students at a large urban high school in Texas found that clinic users were twice as likely to use contraception every time they had sex, compared with students who had not been to the clinic. Furthermore, clinic users were less than half as likely to have never used a birth control method. Of course, there may have been self-selection effects — students who were sufficiently motivated to use the clinic for contraception also might have obtained it elsewhere if the clinic had not been present. The researchers concluded, however, that "a number of factors may influence an adolescent's decision to seek preventive health or reproductive services, but, at the least, school-based clinics may enable students to carry out preventive intentions and to avoid an unplanned pregnancy (24)."

Stronger evidence was found in a study comparing an experimental pregnancy prevention program that combined classroom presentations and counseling in two inner-city Baltimore schools with reproductive health services provided to the students at a nearby clinic. Significantly lower pregnancy rates were found among the experimental program participants. Over a period of nearly three years, the pregnancy rate declined 30% among students in the program schools — one junior high and one senior high — while it increased 58% in two control schools. In addition, there was an average delay of almost seven months in the initiation of sexual intercourse among the program-school students, and younger students in the experimental schools were much more likely than those in the control schools to use contraception. Although technically not a school-based clinic (medical services were not provided in the school itself and the clinic provided only reproductive health care), the program's evaluators concluded that access to high quality, free services, professional counseling, education, and open communication — all key elements of a good school-based clinic — were important to the program's success: "All these factors appear to have created an atmosphere that allowed teenagers to translate their attitudes into constructive preventive behavior (25)."

Reported declines in fertility rates among students in high schools participating in the school-based clinic program in St. Paul, Minnesota, (26), are often cited as evidence of the positive impact of SBCs. It is not clear, however, how great an impact the program had on the early large decline in birthrates because there was only one year of baseline data for the period before the program began, the data were dependent upon program personnel's knowledge of births among students, and because abortion data were not available.

Other studies have provided data on other health problems. For example, one study reported that a clinic in West Dallas detected previously undiagnosed health problems, including such potentially serious conditions as heart murmurs, in 30% of the students who attended the clinic (27). Another study reported that 32% of Pap smears taken at two school-based clinics in New York City were found to be abnormal during a four-month period (28).

Six School-Based Clinics: An In-Depth Evaluation

Given the rapid recent proliferation of school-based clinics, and given the fact that SBCs are often cited as an effective way of addressing some of adolescents' most serious health and social problems, the Center for Population Options believed more information was needed on the actual effect of school-based clinics on students' use of medical care, absenteeism, and their impact on risk-taking behaviors, such as smoking, drinking, illegal drug use, and unprotected sexual intercourse (including contraceptive use and pregnancy). CPO also thought it was important to understand the barriers to effective delivery of services and the potential for improving clinics' effectiveness. Recognizing that a study of multiple sites would allow greater generalization of the findings to other school-based clinics than would an analysis of a single clinic, CPO selected six clinics for in-depth evaluation. These clinics were chosen because they met predetermined criteria regarding size of population served, logistical considerations, nonparticipation in other evaluation projects and the sites' interest in participating. Although these clinics account for only 4% of the total number of clinics currently operating, and although the clinics may have increased their effectiveness since the last data were collected in 1987 and 1988, the study nonetheless sheds light on the areas where school-based clinics have had or can have a positive impact, as well as on the areas where clinics are not likely to have as much of an effect as had originally been expected.

The clinics selected for evaluation were in Gary, Indiana; Muskegon, Michigan; Jackson, Mississippi; Dallas, Texas; Quincy, Florida; and San Francisco, California. All six clinics served low-income populations, provided primary health care, and were open daily during school hours. In a number of important respects, however, they differed from each other. The Dallas clinic, for example, is the country's oldest SBC, having opened its doors in 1970. The San Francisco and Quincy clinics, on the other hand, had not opened when the research project began. The clinics also varied significantly in size, ranging from 1,600 visits annually in the Gary clinic to 10,500 visits (including students from schools other than the clinic site) in Dallas, which was the only one of the clinics studied that serves teenagers who did not attend the home school.* In five of the six schools, the students were predominantly black, but the San Francisco student body was a mixture of black, Hispanic and Asian students. The clinics also varied in their principal goals and objectives; some, for example, stressed pregnancy prevention, while others did not.

To evaluate each clinic, it was necessary to have some means of comparing student populations in schools with clinics to student populations without access to clinic programs. For each of the four clinics operating at the initiation of the project — Gary, Muskegon, Jackson, and Dallas — comparison schools were identified that were as similar as possible to the clinic schools in terms of relevant sociodemographic characteristics and as physically close as possible. Since clinics had not yet opened in the Quincy and San Francisco schools when the study began, baseline data on variables of interest could be collected and compared with data gathered after the clinic had been operating for two years. Data used in the evaluation were drawn from four sources, which together present a coherent and consistent picture of school-based clinics. The sources were:

- **Interviews with school and clinic staff and students** conducted throughout the course of the project, which provided general information about the school and its clinic.
- **Records from each of the clinics**, which, though they varied from computerized encounter forms to handwritten logs, were all able to provide data on the number of clinic

* The clinic is part of the Children and Youth Project administered by the University of Texas Health Science Center. It serves adolescents aged 12-18 in the community regardless of whether they attend the clinic school.

users and their sociodemographic characteristics; the number of clinic visits per user and diagnoses made at each visit; the number of lab tests and referrals made; the number and type of family planning visits; and, depending on the particular clinic, the number of students referred either for contraception or the number given prescriptions or contraceptives.

- **A Student Health Survey**, administered to a sample of students at both the clinic and comparison schools, which provided data on the impact of school-based clinics on students' attitudes and behaviors related to seeking medical services, risk-taking, and pregnancy prevention.
- **Longitudinal birthrate data**, which were collected in two sites — Gary and Muskegon — to assess those clinics' impact on birthrates. In Gary, comparisons could be made between the clinic and non-clinic schools over an eight-year period. In Muskegon, birthrates at the clinic school over a seven-year period before and after the school clinic opened were compared.

Survey and birthrate methods was used in this study assessed the clinics' impact upon the entire student body, and not specifically upon those who actually used the clinic. Comparisons between clinic users and nonusers in terms of clinic impact have the disadvantage of possible selection bias due to the different characteristics and motivations of students who choose to use the clinic and those who do not. Because it is impossible to randomly assign students to school-based clinic services, this is a difficulty that cannot be resolved in this type of evaluation. In addition, although the sample sizes were quite large, they were not sufficiently large to detect small changes or changes in infrequently occurring outcomes, such as pregnancy. Finally, all self-report data are always open to the criticism that they are not reliable or valid, but there is evidence presented in this report that the data were reliable in most cases.

Findings

Clinic Utilization

One measure of the effectiveness of school-based clinics is the extent to which they are used by the students. Clinic use was measured in terms of the percentage of students visiting the clinic in a single year; the percentage of the students who ever had visited the clinic; and the number of visits per student.

Clinic use. Clinic use was highest in Dallas and Muskegon, where 80% and 70% of the student body, respectively, attended the clinic in a single year, and 83% and 82% ever had visited the clinic. About two thirds of the students in Quincy and Jackson used the clinics in a single year, while one quarter did so in San Francisco and Gary; again, the percentages who had ever used the clinic were higher than the single-year percentages in each of these schools. Moreover, the longer the students had been in the school, the more likely they were to have used the clinic. In Dallas, for example, 74% of first-year students and 89% of fourth-year students had used the clinic at some point. And the proportion of students ever using the San Francisco clinic increased from 40% at the end of the first year to 50% at the end of the second. This is undoubtedly because the longer students had attended the clinic school, the more opportunities they had to learn about the clinic, both from the staff in classroom presentations and through other "official" channels, and also from friends and classmates. They also had a longer period of time in which a need for medical care could have arisen.

Number of clinic visits. Many students who used the clinic did so only once or twice during the course of a year: in four sites that could provide information on visits per student in a single year, more than half of the users visited the clinic no more than three times a year. Similarly, the health survey indicated that most students who had ever used the clinic had done so infrequently; however, between 8% and 29% of users had visited the clinic a total of at least eight times, and could be considered "core" users.

Clinic users. The clinics served a greater percentage of females (53% to 64% of students at each sight) than males; clinic users were overwhelmingly black, except in San Francisco, where clinic users were more equally divided among blacks, Hispanics, and Asians; and users were concentrated among 16- and 17-year-olds. In each case, the proportions generally reflected the composition of the student body. A majority of clinic users came from low-income and/or single- or no-parent households; between 48% and 68% lived with one or neither parent, for example, and 6% to 40% of users' families received food stamps.

Clinic services. There were various services offered to students at different sites. All clinics offered some primary care (first aid/emergency care and treatment of sickness), but they varied in the extent to which they addressed reproductive health. All provided contraceptive counseling, for example, but this service was used most widely at the four clinics — Muskegon, Jackson, Dallas, and Quincy — that also dispensed or provided vouchers for contraceptives. Seventeen to 26 percent of all students surveyed at these four schools used the clinic to obtain contraceptives, and according to clinic records at those sites, family planning visits comprised 24% to 28% of their total visits. At the two clinics that did not provide contraceptives, very few students (3% to 5%) used the clinics for contraceptive counseling and referrals.

Some clinics provided preventive care in the form of general health assessments or health maintenance exams, screened for specific problems, such as high blood pressure, and offered assistance with nutrition and weight control. All made referrals for dental care, and the Dallas clinic provided regular dental services on site.

Reasons for clinic use and non-use. Users cited easy access and their relationship with the staff as their chief reasons for using the clinic. Specifically, the three most often cited reasons were: the clinic was part of the school and they felt they could trust it; the clinic was easy to get to; and the staff was caring. Students who cited one of these reasons used the clinic more frequently and for a greater variety of services than students who did not cite these reasons for use.

Lack of need was the principal explanation students gave for never having visited the clinic; it was cited by 43% to 87% of nonusers. In addition, some students didn't feel comfortable at the clinic, and others were concerned about confidentiality. Six to 27 percent said they "just didn't get around" to going to the clinic.

Impact on Utilization of Medical Care

To determine whether the presence of a school-based clinic affects students' overall utilization of medical care, comparisons were made between each of the six clinic-school samples and their non-clinic-school counterparts on the length of time that had elapsed since students had seen a doctor or a dentist, and whether they had visited an emergency room or had been hospitalized during the past year. Information gathered in Dallas and Quincy concerning how recently students had had a physical examination or routine lab tests were analyzed as well.

Doctor visits. The same percentages of clinic- and comparison-school students at each site (roughly two-thirds to three-quarters) had seen a physician within the previous 12 months, and between 79% and 93% had done so within the last two years. Only the Dallas clinic, which was the only clinic in the study that employed a full-time physician and which arranged for all students to receive an examination when they first entered the school, had an impact on how likely the students were to have seen a doctor recently; 72% of students in the clinic school, but only 61% of the students in the comparison school, had seen a doctor within the previous 12 months.

Lab tests/examinations. Also in Dallas, a larger percentage of students in the clinic school than in the comparison school had received a physical examination, a blood test, and a urine test within the last two years, although the proportions were high in both schools, ranging from 70% to 86%. And in Quincy, the only other site where these services were measured, there also was a significant increase in the percentage of students who had recently had a urine test after the clinic had been operating for two

years, but there was not a significant increase in the percentages of students who had received a blood test or physical examination.

Dental care. In two sites — Muskegon and Dallas — the students in the clinic schools had seen a dentist more recently than in the comparison schools. The Dallas clinic provided dental care on site, while the Muskegon clinic made referrals for dental care. In the remaining four sites, however, no differences wee found.

Given the significant impact of the school-based clinic on health care received by students in Dallas, in terms of visits to a doctor and a dentist, physical examinations and laboratory tests, it seems likely that clinics that have a large staff, offer a wide array of services, and made a concerted effort to bring students into the clinic would have greater impact on students' receipt of health care than clinics that do not meet these conditions.

Hospital care. Experts have differed in their expectations for the impact of school-based clinics on visits to emergency rooms and nights spent in the hospital. Some have argued that clinics could reduce the need for these types of care, but others have contended that students use these services primarily for serious health problems, such as injuries and acute illness, that could not be prevented or treated by the school-based clinics. The results of this evaluation provide support for the latter view. There were no significant differences between the clinic and non-clinic samples in terms of either emergency room visits or hospitalization.

Impact on Risk-taking and Pregnancy Prevention

The evaluation sought to determine the potential of school-based clinics to reduce students' absenteeism, use of cigarettes, alcohol, and illegal drugs and to encourage the use of contraception among sexually active teens.

Absenteeism. In Quincy and San Francisco, according to survey results, significantly fewer days were missed due to illness two years after the opening of the clinic, though this difference amounted to about half a day over a four-week period. No significant differences were found between the clinic and non-clinic schools in Gary, Muskegon and Jackson, while in Dallas, students in the clinic school missed more days than their non-clinic counterparts. An analysis of school attendance records in Quincy indicated that while there were fewer absences due to illness after the clinic opened, the overall rate of absenteeism (including absences for reasons other than illness) did not decrease. There was no significant decrease in the number of days skipped (non-excused absences) for any ~~of the clinic~~ schools surveyed compared to their non-clinic or pre-clinic counterparts.

Cigarette smoking, alcohol consumption and drug use. At three of the four sites where alcohol consumption was measured, the frequency of consumption was significantly lower at the clinic school than in its non-clinic counterpart; most of these differences were in the percentages of students who never or rarely drank. No significant difference in alcohol consumption was found in the fourth site. In one of these sites, where students at the clinic school underwent a psychosocial assessment at their first clinic visit designed to identify students who engaged in risk-taking behaviors and might therefore need counseling, students also smoked less frequently than students in the comparison school. There were no differences between the clinic and non-clinic samples in the frequency of use of illegal drugs at the two sites where this activity was measured. However, it is difficult to assess the true extent of illegal drug use through self-report, since many students may not answer this question truthfully.

Sexual activity. Opponents of school-based clinics frequently charge that clinics that dispense or prescribe contraceptives promote sexual activity among students. This criticism is not supported by the results of this evaluation; the clinics did not hasten the initiation of sexual intercourse, nor increase its frequency among sexually active students. None of the clinic schools had a significantly higher percentage of sexually active students than did their comparison schools, and sexually active students in the clinic schools did not have sex more frequently than their counterparts in the comparison schools. To the contrary, one of the clinic schools, Muskegon, had a smaller percentage

of students who had ever had sex; sexually active students in two of the clinic schools, Jackson and Dallas, had sex for the first time at an older age than did the students in the comparison schools; and sexually active students in the San Francisco school reported less frequent sexual intercourse two years after the clinic opened than before the clinic opened.

Contraceptive use. At two of the six sites—Muskegon and San Francisco—significantly more students in the clinic-school samples than in the non-clinic-school or pre-clinic-school samples used some type of contraception at last intercourse. At both sites, this difference was due primarily to increased condom use, and to a lesser extent, birth control pill use, since clinic-school students at these sites were also more likely than their non-clinic-school counterparts to have used either birth control pills or condoms (rather than less effective methods such as withdrawal, rhythm or foam) the last time they had intercourse.

The Muskegon clinic transferred student records to a nearby Planned Parenthood clinic and provided vouchers for contraceptives to be redeemed free of charge there. The San Francisco clinic neither prescribed nor dispensed contraceptives, but provided contraceptive counseling and referrals. Notably, both clinics had aggressive outreach into the school to provide contraceptive education. In San Francisco, where there was a salient threat of AIDS, there were several programs developed through the clinic to make students aware of the need to use condoms. Students from this school also were exposed to intensive city wide media campaigns promoting condom use.

In Gary, Jackson, Dallas and Quincy, no differences were found in the use of condoms or pills at last intercourse between the clinic and non-clinic samples. At the sites dispensing contraceptives or making vouchers available — Jackson, Muskegon, Dallas and Quincy — students who had ever used the clinic for contraception were more likely to use either condoms or pills at last intercourse than were those students who had never used the clinic for this purpose. The same self-selection effects identified in earlier studies applies for this last analysis as well, however.

Sexually active students in both clinic and non-clinic schools, who were asked for all reasons why they had not always used contraception during intercourse, most often said they didn't expect to have sex (21% to 57% cited this reason) and they didn't think pregnancy would occur (cited by 14% to 42% percent). Discomfort in going to a strange clinic, a partner's desire not to use contraception and apathy were other common explanations for their behavior. Students who cited these reasons for not practicing contraception were in fact, more likely not to practice contraception at last intercourse than students who did not check these reasons.

Pregnancy and birthrates. There were no differences among students at the clinic and non-clinic schools at any of the six sites as to whether they had been pregnant or gotten someone pregnant within the last 12 months. These results should be viewed cautiously, however, because some teenagers who conceived while in high school subsequently may have dropped out and not been present to complete the Student Health Survey, and other teenagers may not have reported previous pregnancies. However, this underreporting should not have differentially affected the results from the clinic-school and non- or pre-clinic-school samples surveyed.

Birthrates were calculated in two sites—Gary and Muskegon. In the former, there were variations in birthrates over time, but the rates varied similarly for both the clinic and control schools, indicating that the school-based clinic had no impact on birthrates. In Muskegon, comparisons were made in the birthrates at the clinic school before and after the clinic opened. Although there was a decline in the birthrate over time, it is not possible to determine from the available data whether the decline was more rapid after the clinic opened than before it opened.

Summary and Recommendations

The primary purpose of school-based clinics is to provide young people, many of whom have no other regular source of medical care, with comprehensive health care, and this evaluation indicates that these clinics were successful in achieving this objective. Very large percentages of students used the clinic in five of the schools studied, and in the sixth clinic, the proportion of users increased each year after it opened. Most students used the school-based clinic infrequently, primarily for treatment for illness, first aid, physical exams and counseling; however, a small core group of students used the clinic considerably more often, and it was these students upon whom clinics may have had their most significant impact. Easy access to the clinic and trust in its staff were the key factors that encouraged students to use a school-based clinic. Most non-use appears to be related to lack of need, but some students did not use a school-based clinic because they were concerned about confidentiality or because they "just didn't get around to it." These clinics must devise ways to allay such concerns and to motivate students in need to take advantage of their services.

Since most communities have alternative sources of health care available, a key question is whether school-based clinics actually increase students' access to health care or simply replace providers that were used in the past. While substitution did occur, the study findings indicate that the more resources these clinics had, the greater their impact on access: more students saw doctors and dentists in the clinic where those professionals were employed full-time, and more students received health maintenance exams when those exams were a routine part of the clinic program. However, the question of impact on access cannot be fully answered on the basis of the results from this study, in part because of the questions asked. In most clinics, including most of those evaluated in this project, the primary health care provider is a nurse or nurse practitioner, not a doctor, so that fewer doctor visits cannot be equated with less care.

Future studies should build on what was learned in this evaluation by asking more specific questions about the types of health care workers seen and the frequency with which specific health needs such as minor illness, injury and treatment for STDs are unmet. To determine the impact of school-based clinics on emergency room and hospital admissions, it may also be helpful to examine the impact on emergency room use for different health reasons. Many admissions may be due to causes that could not possibly be prevented by clinics, while other causes may be preventable. It may also be helpful to examine students' perceptions of the role of school-based clinics in the context of other sources of medical care available to them in their communities.

The study provides encouraging indications that school-based clinics can reduce students' consumption of alcohol and tobacco. The impact on both smoking and drinking depends partially on educational efforts, and the evaluation results demonstrate the potential for school-based clinic intervention in this area.

The results of this study demonstrate that these school-based clinics did not encourage students to be sexually active, even when the clinic dispensed or prescribed contraceptives. Moreover, users of clinics that dispensed contraceptives were more likely than non-users in the same school to use birth control and to use effective methods of contraception.

The results also indicate, however, that providing contraceptives is not enough, by itself, to significantly increase contraceptive use among sexually active students in the entire school. The findings that the school-based clinic samples in Dallas, Jackson, and Quincy (which provided contraceptives) did not have higher rates of contraceptive use than their non-clinic school counterparts, and that the San Francisco clinic sample had higher rates of condom use than the pre-clinic sample even though it did not prescribe or dispense contraceptives, suggests that school-based clinics should provide contraceptive information as well as physical access to contraceptives. Community-wide intensive education campaigns, such as those mounted in San Francisco during the AIDS crisis, may motivate students to find sources of contraception, even if these sources are outside of the school. The physical availability of contraceptives within the school does not automatically provide greater incentive to use them, as is clear in those sites where the clinic dispensed birth control products but did little in the way of educational outreach or follow-up of patients and did not significantly increase contraceptive use.

According to survey data, school-based clinics had no effect on pregnancy rates. The birth rate did decline in one of the two schools where rates were measured, but the data varied from year to year and did not provide a conclusive explanation for why this occurred. The potential impact of school-based clinics on pregnancy and birthrates must continue to be studied, and in particular, should be assessed in connection with program changes described below that are designed to address these outcomes.

Improving Clinic Effectiveness

Clinics can take a number of steps to enhance their effectiveness in preventing pregnancies among students and in reducing risk-taking in other areas. Some of the recommendations that follow have already been implemented in some clinics. In many cases where they have not, implementation will require additional resources, which are often difficult to generate. Even with adequate resources and effective strategies, however, clinics face a difficult task in trying to alter students' risk-taking behaviors, many of which are deeply rooted in the values and practices of the larger community in which they live. Recommendations include:

- **Identify and target students engaged in risk-taking behaviors.** Clinics generally do a good job of treating and counseling students who seek their services, but they rarely have aggressive programs to identify risk-taking teens who are not motivated to come to the clinic. Scheduling routine physical examinations for all incoming students or administering psychosocial assessments can help clinics identify risk-takers. Clinics could also urge teachers and other personnel to refer risk-taking youth to them.
- **Provide comprehensive reproductive health services.** This evaluation demonstrated that students were far more likely to use a school-based clinic for reproductive health care if the clinic prescribed or dispensed contraceptives as well as offered counseling about birth control methods and pregnancy testing. Intensive education efforts, both in the clinic and in the classroom, are also critical. (Some possible approaches are discussed below).
- **Appointments for family planning counseling and for birth control should be offered promptly,** ideally on a walk-in basis, because teens are impulsive and may not be willing to wait a week or longer to make important decisions about sex (or other risk-taking behaviors). Clinics also need to follow up family planning patients more effectively in order to improve contraceptive continuation rates.
- **Reproductive health programs should place greater emphasis on male responsibility.** The findings in San Francisco and Muskegon suggest that it is possible to increase the use of condoms by males. Males have been much less likely than females to visit a school-based clinic for contraceptives, but they can be reached through sports physicals, classroom activities, and the media.
- **Conduct more outreach in the school.** Since most students use school-based clinics infrequently, it is important for clinics to undertake outreach efforts to provide teens with information and support that will help them avoid or discontinue risk-taking behavior. In the area of sexuality, clinics can work with the school to implement and participate in a comprehensive sexuality education program. In addition, clinics can place posters about the clinic and health-related topics throughout the school; write a regular column in the school newspaper; and make presentations at school assemblies.
- **Group sessions facilitated by trained clinic staff can provide students with more opportunities** to resolve difficult personal dilemmas about sex and other risk-taking behaviors, and at the same time, help students become familiar with clinic staff.
- **Develop community-wide programs.** School-based clinics cannot effectively address any difficult social problem in isolation. They need to involve the broader community, including parents, youth-serving agencies, religious and other community leaders, and the media.
- **Increase permanent staff.** Many clinics will need additional staff to implement the strategies proposed here. They also need to maintain staff continuity. To save money, some clinics use rotating physicians from nearby medical schools. Others pay low wages and lose full-time staff once they have gained sufficient experience to command higher

salaries elsewhere. Still others reassign more experienced staff to several schools or community health clinics in order to take wider advantage of their skills. Staff turnover reduces the continuity of the relationships that can be developed between the clinic and students.

- **Provide education and deliver services earlier.** The results of this study indicate that many students were sexually active before entering high school. Where it is possible, programs operating school-based clinics should begin interventions in junior high or middle schools. These interventions should include effective peer-led programs to promote delayed sexual activity.
- **Provide greater motivation for delaying pregnancy.** Some sexually active students were not highly motivated to avoid pregnancy. One possible way of providing this motivation may be by presenting pregnancy prevention messages within the context of a life planning curriculum, where students are encouraged to extend their education and begin a career before beginning a family. Also important is the provision of role models and improved job opportunities for youth in their communities.

School-based clinics have been successful in their short lifespan in providing primary and preventive care to the students they serve. Their effectiveness has been more intensely scrutinized than other health initiatives developed for adolescents, primarily because of the expectation that they could solve the myriad problems facing adolescents today. The trends found in this study indicate that, given the appropriate financial and community support, school-based clinics may be able to achieve the goals of improved health care and reduced risk-taking behavior among the students they serve. At the same time, the clinics will benefit greatly from opportunities to cooperate with other programs from diverse community organizations that also have been developed especially to meet the needs of adolescents. Reducing risk-taking behaviors and improving life options for adolescents are ambitious goals that require will, energy, and imagination. These goals can only be achieved if they are actively sought not only by the schools, but by a caring network that includes families and the larger community as well.

CHAPTER 2
Research Methods

Since their inception in 1970, school-based clinics have been viewed as an effective way to provide health care to teenagers as well as to address many of the complex health and social problems facing young people, particularly unplanned pregnancies. Yet despite the proliferation of school-based clinics in recent years, little was known about their effectiveness in delivering services and enabling students to avoid unplanned pregnancies and other risks, such as drug and alcohol abuse.

Up to now, the little research that has been conducted on the impact of school-based clinics has focused largely on the effect of individual clinics on contraceptive use and pregnancy and birthrates; these studies do provide some evidence that clinics can have a positive impact in this area.

To gain a better understanding of the potential impact of school-based clinics on students' access to medical care and on their behavior, and to assess how clinics can be more effective in reaching that potential, CPO undertook a major evaluation of a diverse group of six clinics. It was felt that a study of multiple sites would permit evaluation of a wider range of possible programs than a single-clinic study and would allow greater generalization of the results to all school-based clinics.

The study sought to assess the students' use of medical care generally. It also sought to determine what, if any, effect the clinics had on students' use of illegal drugs, alcohol consumption, cigarette smoking, and unprotected intercourse. Particular attention was paid to students' use of contraception and the clinics' success in preventing unwanted pregnancies.

In contrast to evaluations of other types of health programs, evaluations of school-based clinics are made somewhat easier by the fact that these clinics have a well-defined target population that 1) is identified by name; 2) can be reached at one location; and 3) is the basis for useful aggregate statistics that are routinely collected. The evaluation of school-based clinics, however, presents some of the same difficulties as evaluations of other health programs trying to assess the impact on behavioral outcomes: school-based clinics are comprehensive and do not focus on any specific behavior; changing behavior is never an easy task, and the effects of a single program, by itself, may be small; there are self-selection effects—students who use the clinic differ from those who do not; it can be more difficult to collect valid data on sensitive topics, such as sexual and risk-taking behaviors, than on other behaviors, and in the case of students, appropriate consent may be required to obtain these data.

This chapter describes the selection of sites for this study, the criteria used for evaluation, and the multiple sources of data used to measure possible impact.

Site Selection

During the development of this project (1984-1985), our task was to identify and learn more about the school-based clinics that were then operating in 17 cities or communities in the United States.

The six clinics selected for evaluation thus represent a third of these programs and were chosen because they met certain criteria with regard to size of population served, logistical considerations, nonparticipation in other evaluation efforts and, most important,

their motivation to participate. Included are sites from various geographical locations that represent different parts of the country, that are in both rural and urban communities and that reflect different political and cultural milieus. Those sites selected were: Gary, Indiana; Muskegon, Michigan; Jackson, Mississippi; West Dallas, Texas; Quincy, Florida; and San Francisco, California. These schools are described in greater detail in Chapter 3.

While conducting an evaluation in multiple sites provides a broader picture of school-based clinics than the evaluation of a single clinic, there are some ways in which the evaluated sites differ from school-based clinics generally. First, five of the clinics are located in predominately black schools, but nationally, school-based clinics currently serve larger white populations than those studied here. Second, half of the evaluation clinics dispense contraceptives, while only 15% of school-based clinics across the currently country do so. These differences are important to consider when generalizing the findings reported here to the larger universe of school-based clinics.

Criteria for Evaluation

Early on, school-based clinics were characterized by their diversity of goals and mix of programs, and the clinics participating in this evaluation were no exception. This study sought to describe each clinic (Chapter 3) and to determine the relationship between various clinic characteristics and their effectiveness in accomplishing a set of common goals.

Definitions of "effectiveness" depend on goals set forth by individual SBCs, which means that they may vary greatly from clinic to clinic, and more emphasis may be given to some aspects of the program than others. The individualistic nature of each clinic necessarily makes developing evaluation criteria more difficult. Criteria chosen for evaluation that reflected certain common goals at each of these six clinics were:

- Utilization of clinic services by the student population;
- Impact of clinics on students' utilization of medical services;
- Impact of clinics on absenteeism;
- Impact of clinics on risk-taking behaviors; and
- Impact of clinics on sexual activity, contraceptive use and pregnancy.

Sources of Data

Data were collected from four primary sources. These four types of data and procedures for using them are described below.

Interviews and clinic visits

General information about the schools and the clinics was obtained through interviews with school and clinic staff and students throughout the course of the evaluation. At the beginning of the project, one or more staff members were interviewed to gather information on the history of the program, program goals, staffing patterns, services offered, and perceptions of the students.

At subsequent visits, staff members were interviewed, and students at some of the schools were interviewed informally about their perceptions of the clinic. Near the completion of the project, a more formal program assessment was conducted at all six sites. During that evaluation the staff members reviewed the numerous tables based on the quantitative data described below, and the Reproductive Health and Pregnancy Prevention Inventory (see Technical Notes (1) and Appendix A) was used to determine which existing characteristics were effective and what changes should be made to improve the effectiveness of the clinics in addressing specific issues. Professionals knowledgeable about adolescent health and reproductive health services accompanied CPO staff and participated in these discussions with the clinic staff members in three sites. Recommendations resulting from this part of the evaluation are summarized in Chapter 7.

Clinic records

Each clinic kept medical records on its clients, and each had some type of procedure for monitoring its use of services. This activity was routine for each clinic, and the records were collected independently of the clinic's participation in this project. These monitoring procedures varied from computerized encounter forms to handwritten logs. The funding agencies and their reporting requirements differed from clinic to clinic, so each clinic collected different types of information in different formats. Fortunately, all clinics were able to provide most of the following types of information on utilization of services:

- the number of clinic users;
- the number of clinic visits per user and diagnoses made at each visit;
- the number of lab tests and the number of referrals made;
- the number and type of family planning visits and (depending on the particular clinic).
- the number of referrals or clients who were prescribed or given contraceptives.

Generally speaking, most of this information was comparable between clinics, but there were differences in the ways clinics defined encounters or coded diagnoses.

The Student Health Survey

The Student Health Survey was administered to students at both clinic and comparison schools, and served as the source of most of the data on the impact of school-based clinics on students' behaviors related to seeking medical services, absenteeism, risk-taking and pregnancy prevention.

Design. In order to evaluate each clinic, it was necessary to provide some means of comparing student populations in schools with clinics to student populations without access to clinic programs. Quasi-experimental procedures for comparison were implemented because random assignment to treatment (clinic vs. non-clinic school) was not appropriate. For each of the four clinics operating at the initiation of the project — Gary, Muskegon, Jackson, and Dallas — comparison schools were identified that were 1) as similar as possible to the clinic schools with respect to relevant sociodemographic characteristics (e.g., socioeconomic status and race); and 2) as geographically close as possible.

To assess sociodemographic comparability of student populations, research staff examined the demographic characteristics of census tracts in the catchment area, questioned principals and clinic staff in clinic schools and drove through surrounding neighborhoods to visually assess the comparability of clinic-school and non-clinic-school neighborhoods. In Dallas, Jackson, and Gary, there were schools with well-matched student populations nearby. In Muskegon, the nearest school with an appropriate population was almost 90 miles away. For a discussion of the differences in background characteristics between clinic and comparison schools, see Technical Notes (2).

The remaining two schools included in the evaluation — Quincy and San Francisco — had not yet opened their clinics when the research study began, so it was possible to collect baseline data on evaluation variables of interest (see Technical Notes (3)). For these two schools, no comparison schools were used. A sample of students in the two schools was surveyed both before and after the clinic opened. However, this was not a longitudinal study in which the same students were surveyed both times. Rather the survey data were a "snapshot" of a sample of the student population before the clinic opened and a second snapshot two years later. Some students were included in both, but many were not.

There were two reasons for not conducting a longitudinal study in Quincy and San Francisco. First, tracking individual students over a two-year period would have been difficult, costly, and time-consuming. Second, the sample would have aged over the two-year period, and it would have been difficult to distinguish between effects of the clinic and maturation effects. This is especially important with reference to behaviors concerning sex and birth control, which change as adolescents become older (29).

Table 2.1
Percentages of students surveyed by racial/ethnic composition, by sites[a]

	Gary		Muskegon		Jackson		Dallas		Quincy		San Francisco	
	Clinic/ Non-clinic		Clinic/ Non-clinic		Clinic/ Non-clinic		Clinic/ Non-clinic		Post/Pre		Post/Pre	
(N)	(683)	(665)	(475	(1149)	(317)	(564)	(519)	(912)	(729)	(607)	(428)	(859)
Race												
Black	98	96	94	83[d]	99	93[c]	76	97[d]	92	89[b]	18	30[d]
White	—	—	4	15	—	5	1	—	7	11	5	3
Hispanic	1	2	1	—	—	1	21	1	—	—	31	20
Filipino	—	—	—	—	—	—	2	2	—	—	40	37
Other	1	2	1	2	1	1	—	—	1	—	6	10

a Based on Student Health Survey.
b $p < .05$, chi square test of significance.
c $p < .01$, chi square test of significance.
d $p < .001$, chi square test of significance.

A statistical description of the survey sample at each school is found in Tables 2.1 and 2.2 below. These are discussed in greater detail in Technical Notes 2 and 3 at the end of this chapter.

The Instrument. The Student Health Survey was designed to measure sociodemographic characteristics, clinic use, utilization of medical services in general, absenteeism, risk-taking behaviors, sexual activity, use of contraception, and pregnancy. Different versions of this questionnaire were used (see Appendix B for a composite version). It was revised during the second year in order to focus less upon sexuality and more upon a wider variety of health outcomes. Thus, the revised questionnaire more closely reflected the comprehensive nature of the clinics and, coincidentally, made it easier to obtain the necessary consent from school authorities. These changes meant, however, that comparable data are not available for students at all the sites.

The initial version of the questionnaire included many questions used in previous studies. It was reviewed by the project's research advisory board and by staff at several sites. It was pre-tested with three five-member groups of students for comprehension of items and for suggestions for rewording where the meaning was not clear. Student discussion of every item also generated suggestions, many of which were incorporated.

The selection of the behavioral outcomes measured by this questionnaire was based on objectives identified in written documents of 15 SBCs (these were given the greatest weight), objectives identified in discussions with professionals familiar with school-based clinics, and objectives identified in meetings of the Society for Adolescent Medicine. As expected, there was a great deal of overlap and consensus among these three sources.

Administration of surveys. Procedures for obtaining parental consent varied from school to school. In Gary, Muskegon, and Dallas, a default procedure was used. Letters were sent home describing the questionnaire and administration procedures. Those parents objecting to their child's participation were requested to contact the principal's office. Fewer than five parents in each of the schools at these sites did so.

In Jackson, students were required to return a consent form signed by a parent before they were allowed to participate. Because many students failed to return the form either providing or denying consent, a smaller percentage of students in Jackson were able to participate in the survey. It is possible that students who obtained consent and returned

TABLE 2.2
Background characteristics of selected students*, in percentages of students surveyed, by site[a]

	Gary		Muskegon		Jackson		Dallas		Quincy		San Francisco			
	Clinic/	Non-clinic	Clinic/	Non-clinic	Clinic/	Non-clinic	Clinic/	Non-clinic	Post	Pre-	Post/	Pre-	Weighted Post	Pre-
Gender														
(N)[b]	(666)	(636)	(442)	(947)	(314)	(524)	(387)	(860)	(673)	(542)	(439)	(892)	(438)	(892)
Female	59	54	57	53	61	52[c]	55	51	54	52	51	49	52	49
Age														
(N)	(661)	(635)	(444)	(938)	(314)	(524)	(394)	(872)	(673)	(542)	(439)	(866)	(428)	(866)
Mean	16.2	16.2	15.9	15.7[d]	16.8	16.5[e]	16.4	16.1[d]	16.5	16.3[d]	16.3	16.3	16.3	16.3
Grade point average														
(N)	(659)	(635)	(436)	(941)	(311)	(521)	(391)	(881)	(672)	(538)	(430)	(863)	(427)	(863)
Mean	2.7	2.8[c]	2.2	2.3[d]	2.6	2.5	2.4	2.4	2.3	2.1[e]	2.6	2.5[d]	2.6	2.5
Future school plans														
(N)	(665)	(637)	(440)	(942)	(314)	(523)	(384)	(881)	(666)	(532)	(437)	(807)	(436)	(807)
Quit HS	—	—	—	1[e]	—	—	1	2[c]	—	1	—	1[d]	0	1
Finish HS	31	32	45	33	31	25	59	52	38	41	20	28	20	28
College/ Training	69	68	55	66	69	75	40	46	61	59	80	71	80	71
Number of parents in home														
(N)	(666)	(638)	(444)	(948)	(314)	(524)	(395)	(884)	(673)	(542)	(439)	(892)	(438)	(892)
0	9	7[c]	12	7[d]	14	6[e]	15	10[e]	13	11	11	13	12	13
1	49	43	54	51	58	52	57	48	44	46	36	36	39	36
2	42	50	35	42	28	42	28	42	43	43	53	51	49	51
Food stamps received by someone in home														
(N)	(661)	(635)	(441)	(941)	(311)	(516)	(394)	(897)	(673)	(536)	(409)	(858)	(410)	(830)
Yes	36	35	31	35	39	20[e]	25	8[e]	17	24[d]	7	11[c]	8	11[e]
Free lunch program participant in home														
(N)	(664)	(638)	(440)	(942)	(312)	(523)	(394)	(881)	(671)	(538)	(419)	(858)	(416)	(858)
Yes	37	32	63	50[e]	80	58[e]	58	37[e]	51	64[e]	18	22	16	22
Source of income[f]														
(N)	(666)	(638)	(444)	(946)	(313)	(524)	(394)	(884)	(673)	(541)	(438)	(890)	(437)	(890)
Job	72	76	74	74	84	91[c]	85	92[e]	90	87	90	87	89	87
Unemp	7	5	5	2[d]	2	1	2	1	1	2	1	3[d]	3	1
Welfare	16	13	10	14[c]	11	4[e]	8	2[e]	(not on Pre)		2	4[c]	3	4
Soc Sec	22	18	19	19	15	12	16	10[d]	21	22	10	9	11	9

* Analysis restricted to black students in all schools but San Francisco; in San Francisco, weighted data are weighted so that the racial distribution of the weighted sample approximately equals the racial distribution of the pre-clinic sample.

a Based on Student Health Survey.

b N equals the number of students responding to each question.

c $p < 0.05$ (see note below).

d $p < 0.01$ (see note below).

e $p < 0.001$ (see note below).

f More than one source may be identified per respondent.

Note: Statistical significance determined by chi-square test for following variables: gender, number of parents in home, food stamps received by someone in home, free lunch program participant in home, future school plans.

Statistical significance determined by t-test for following variables: age, grade point average.

their consent forms differed in some important way from those who did not, possibly biasing the results. This, however, should not affect the comparability of the samples from the clinic and the comparison schools, since both schools required the same procedure and students were given the same amount of time to obtain consent.

In San Francisco, consent procedures changed from a default procedure for the baseline survey to a requirement of signed consent for the second survey. Although a major effort was undertaken to mail letters to parents in order to obtain consent (letters were even translated into multiple foreign languages) problems with incorrect addresses, and an immediate deadline prevented substantial numbers of students from obtaining written consent. Consequently, the sociodemographic characteristics of the two samples varied with regard to race, grade point average and receipt of food stamps (Tables 2.1 and 2.2). In all results reported below, these differences were controlled statistically (see Technical Notes (3)).

In Gary, Muskegon, and Jackson, teachers brought their classes to the auditorium where CPO staff, with the help of school counselors and teachers, administered the survey. Desks were moved or students were seated in every other chair so that no one could see anyone else's answers. In Quincy, the survey was administered by CPO staff and four specially trained health professionals in individual classrooms. In San Francisco, science teachers, monitored by local research staff, administered the survey in their classrooms after the necessary training. In the comparison school in Dallas, surveys were administered by CPO staff and teachers in the auditorium. In the clinic school, however, the principal requested at the last minute that English teachers, with the help of CPO and clinic staff, administer the survey in classrooms immediately prior to the English final. Dallas was the only site where the administration procedures differed.

Students themselves were reminded orally and in writing that participation was voluntary and that their responses would be anonymous. Anonymity was facilitated through seating arrangements, the use of pencils by all students (so that no one was identified by the color of ink they used), the provision of blank paper to cover answers, a distribution procedure in which questionnaires were handed out by and handed back to each survey administrator directly, and the prohibition of anyone's walking around the room while students were completing the questionnaire.

Sample size and response rate. Table 2.3 indicates the percentages of students completing the questionnaires out of the total enrollment. The sampling frame varied from school to school; in most schools it was the entire student body, while in both the clinic and comparison schools in Gary, the comparison school in Muskegon, and the San Francisco school, a sample of classes, stratified by grade level and level of instruction,

TABLE 2.3
Survey sample sizes by site[a]

	Gary		Muskegon		Jackson		Dallas		Quincy			San Francisco	
	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	2nd post-clinic	1st post-clinic	Pre-clinic	Post-clinic	Pre-clinic
Students enrolled in school	1,700	1,900	802	1,683	708	1,120	1,129	1,469	815	815	767	1,789	2,050
Usable questionnaires	688[b]	667[b]	480	1,177	317	565	524	918	731[c]	710[c]	608[c]	433[b]	892[b]
Percentage of total enrollment	41	35	60	70	45	50	46	62	90	8	79	24	44

a School records and student surveys are sources of data.

b A representative sample of classes were selected to intentionally reduce the completed sample size.

c In Quincy, questionnaires were collected only from grades 10 through 12.

was selected (See Technical Notes (4)). The decision to administer the survey in a sample of classes, rather than in all classes in these schools, was made on the basis of their relatively large enrollments in comparison to the other schools included in the study.

As mentioned above, the sample size in some schools was reduced by consent procedures. The response rate in some schools where all students were expected to participate also may have been reduced by: 1) inflated enrollment figures which retained names of dropouts; 2) high rates of absenteeism; and 3) the exclusion of educable mentally disabled students who may not have been able to complete the questionnaire reliably.

The response rate, based on the number of students who actually attended class the day of the survey and who had parental permission to participate, ranged from 90% to 98%. Thus, this survey should be representative of those students.

Reliability. Reliability is the consistency with which items or the survey instrument are answered the same way when asked more than once. To assess the reliability of the Student Health Survey, a test-retest method was employed in which the questionnaire was administered to students and then readministered to the same group of students two weeks later. (See Technical Note (5) for more detailed information concerning this process). This reliability assessment was conducted at a high school which was not included in the evaluation, but which did have a clinic and which generally was similar demographically to those schools included in the evaluation. Out of the 115 students enrolled in the five English classes chosen to participate in the reliability check, 87 students completed both surveys (See Technical Notes(5)).

The test-retest reliability coefficient was calculated for each item as the percentage of students who gave exactly the same response each time. In addition, for several items, correlation coefficients also were calculated as a more appropriate estimation of reliability. Both of these scores for selected items can be found in Appendix C.

In general, reliability coefficients for questions about information expected to be stable over a two-week period (such as gender, grade level, etc.) were greater than .80, and most were greater than .90. Included among these highly reliable items were all the background characteristics, most of the questions on the receipt of health care, all the reasons for not getting medical care, the question whether the student had ever had sex or a sexually transmitted disease, all the reasons for not using birth control, questions on whether the student had ever been pregnant and how the pregnancy had been resolved for those who had been pregnant, and questions on clinic services used and reasons for using and not using the school-based clinic.

For items concerning frequency of behaviors such as absenteeism, sexual intercourse, and clinic attendance, lower reliability coefficients were observed — ranging from .48 to .50. This is no doubt explained in part by the fact that test and retest surveys — based on different time periods and the frequency of different behaviors—are likely to be different during different time periods. For example, students are likely to be absent a different number of times during different two-week periods. Correlation coefficients appeared quite a bit higher on these items at .59 to .81, however, indicating these items were generally reliable.

Validity. The concept of validity is related to the "truth" value of the responses. The validity of a survey instrument is the degree to which it is really measuring what the researcher wants it to measure. Sometimes this is related to issues of comprehension of the items. "Incorrect" answers may be due to the respondents' misunderstanding of the question. Because many of the questions such as "How old are you?" and "If you were sick and needed medical care, where would you go?" are straightforward, face validity can be used as a criterion for determining the validity of most items.

In addition to the underreporting of certain events due to misunderstanding of the question, there may be underreporting due to the student's perception of the social desirability of the behavior in question. With regard to questions concerning sexual behavior and contraceptive use, the survey results are consistent with both previously published findings (30) from other similar studies, specifically with regard to contracep-

tive use. Survey data also are consistent with data from clinic records. Both these pieces of information, therefore, inspire a high degree of confidence in the validity of these data (see Technical Notes (6)).

There is some concern, however, about items related to pregnancy and pregnancy termination. Some students who have been pregnant may not wish to admit a previous pregnancy, particularly if it ended in abortion. Furthermore, a few teenagers may define a previous pregnancy as a pregnancy only if it resulted in a live birth, and they therefore may answer "no" to the question: "Have you ever been pregnant?," even if they were pregnant at the time of the survey or if they had had an abortion or a miscarriage.

An additional difficulty with determining pregnancy rates from survey data is that some of the teens who conceived while in high school subsequently dropped out and were not present to complete a questionnaire. Thus, pregnancy data should be interpreted cautiously. It is true, however, that there is no reason to expect reporting biases to differentially affect either the clinic-school or non-clinic-school samples.

Survey data concerning abortion and childbirth were not included in this report because they may not have been valid and the numbers of students reporting these two events were very small and unstable from school to school.

The validity of the percentages of students reporting illegal drug use should be viewed cautiously. This is because of the discrepancy between the survey estimates and estimates from national studies — the findings from the Student Health Survey are generally lower than the national figures (31).

Data analyses. Most of the results presented in this report are based upon the clinic records and survey data. Some of the tables and statistics are simply descriptive (e.g., percentages of students using the clinic in a given site). In contrast, in analyzing the impact of the clinic upon health behaviors, much of the focus is on comparisons of the clinic-school surveys with the non-clinic- or pre-clinic-school surveys. In determining differences between the clinics in their sociodemographic characteristics, chi-square and t-tests of significance were used for categorical and interval level data, respectively. These same tests were used for many of the outcome variables of interest as well.

Because the clinic and comparison sites were not matched perfectly, it was necessary to statistically control for any differences in background characteristics which could affect the results. This was done primarily through multiple regression analyses.

The Student Health Survey measured 14 background characteristics that could potentially be used as control variables. Preliminary step-wise regression analyses indicated that these background variables were related in complex ways with different sites, subpopulations, and outcome variables, making comparisons across samples and outcome variables difficult. In order to select the most important variables to control for, a series of factor analyses were conducted. Both race and gender were strongly related to most outcome variables of interest. In sites where the students were predominantly black — all sites except San Francisco — race was controlled for by restricting the comparative analyses to black respondents only. In San Francisco, where the racial composition was more mixed, the post-clinic sample data was weighted so that its racial composition was the same as that of the pre-clinic sample data. Where gender differences were of interest, separate analyses were conducted for females and males. In all other cases, gender was included as a background variable in the regression model.

Factor analysis techniques were used to further reduce the remaining 12 variables to a list of six: age, number of parents, receipt of food stamps, receipt of free lunches, grade point average, and future academic plans. These were selected from the important factors produced by the analysis using three criteria: factor loadings, skewing of each distribution, and relative reliability and validity.

The examination of additional regression analyses indicated that after controlling for these characteristics, additional variables did not significantly increase the amount of variance explained.

Hierarchical regression techniques were employed in assessing the impact of the clinic's presence while controlling for the specified background characteristics. First, the

variables to be controlled were entered into the model. Then the dummy variable for 'clinic presence' (coded as non-clinic school=0 and clinic school=1) was entered to determine the impact of the clinic on the outcome variable. A test of the change in the F value was observed to determine the degree to which clinic use affected the outcome variable, after controlling for background characteristics.

The unstandardized coefficients for the independent variable of interest, clinic presence, are reported in the tables. Significant probability values ($p < 0.05$) indicate that, controlling for background variables, the presence or absence of a clinic was related to specified outcome (dependent) variables. The regression coefficient can be interpreted as the difference between the percentage of the clinic-school sample having the outcome characteristic and the percentage of the comparison-school sample having the characteristic, after controlling for the background variables. Positive regression coefficient values indicate a positive relationship between clinic presence and the outcome variable, and negative values indicate a negative relationship.

Longitudinal birthrate data

The impact of the clinics on the school birthrates was measured in two sites: Gary and Muskegon. The traditional procedures for estimating school birth rates by calculating birth rates in the relevant census tracts have several problems which this study sought to overcome: the school boundaries rarely coincide with the census tracts; the census tracts often include teens who have dropped out of school prior to conception; and estimates of the number of females within the desired age range often are unreliable because they are based on census data collected only every 10 years.

In Gary, lists of females enrolled in the clinic and the non-clinic schools were provided for the years during the evaluation. The only hospital in Gary where pregnant teenagers would have delivered matched these lists of names with their maternity records. Births were counted only if the conception occurred while the student was enrolled in school. Rates were calculated by dividing the number of births by the total number of females enrolled in school. Age- and grade-specific rates also were calculated. Rates were compared between clinic and control schools to determine the clinic's impact.

Because the 90-mile distance between Muskegon's clinic school and the comparison school meant the use of different hospitals for delivery by pregnant students from the two schools, no birth rate comparisons were made between them. Instead, birth rates were compared before and after the opening of Muskegon's school-based clinic, using the method described above to match names and calculate birth rates.

Weaknesses and Strengths of the Research Methods

The major limitation of these methods was that the impact of school-based clinics was measured most often in terms of the entire student population, rather than in terms of those receiving care from the clinic. These results assess not just the impact of the clinic on those who use its services, but also the clinic's ability to reach the entire student body.

Second, the laws of probability and statistics dictate that very large sample sizes are needed to detect small effects. For example, a sample size of 750 is necessary in the clinic and comparison schools in order to have a 50% chance of detecting a 20% drop in the pregnancy rate with 95% confidence. These large sample sizes were not available in all of the schools.

Third, even though background differences between the clinic and comparison schools were controlled statistically, there may remain other unknown differences between the clinic and comparison schools not measured in this study.

Finally, self-report data are always open to the criticism that they are less reliable or valid than other types of data. Where this limitation is relevant to specific results, this has been noted, and the reader is cautioned to consider this.

The methods employed in this study also have several strengths. First, four different types of qualitative and quantitative data were collected, and the results presented later in this report demonstrate that they create a coherent and consistent picture. For example, clinic records completed by clinic staff and the Student Health Surveys, completed by the

students, produce similar results when they can be compared. This consistency provides evidence for the strength and validity of the findings of this study.

Second, six different sites were evaluated and many similar patterns of use were found among them, suggesting that there are some similar characteristics to be found among school-based clinics in general. Third, many of the results are based on rather large numbers of records. Over 8,500 surveys and over 20,000 clinic records were analyzed. Finally, quasi-experimental designs were used to measure the impact of school-based clinics in analyzing the survey data and the birth rate data.

Technical Notes

1. During the site visits, a "Reproductive Health and Pregnancy Prevention Inventory" was used as a guide to understanding each clinic's effort with regard to reproductive health in general and prevention of teenage pregnancy in particular. In developing this inventory, CPO staff generated a series of items describing possible program characteristics, which were then reviewed by several outside experts familiar with school-based clinics and other reproductive health programs. The final list included 108 characteristics that were then judged by a larger review panel. Panel members rated each item on a 1 to 10 scale, first for its importance in a comprehensive reproductive health program and second, for its importance in a pregnancy prevention program. The index was then used as a discussion guide to evaluate the current effectiveness of the clinics and to make recommendations for ways the clinic could improve their performance. Information obtained using this inventory is discussed in the last chapter. A copy of the inventory is found in Appendix A, with mean ratings of items.

2. Even though the researchers chose comparison schools that were as similar to the clinic school as possible, some sociodemographic differences existed between the schools being compared. Because of these, it was necessary to analyze the data in such a way that the effect of the school-based clinic on the outcome variable was not confounded with differences in sociodemographic characteristics.

   As indicated in Chapter 2, there were racial differences between the clinic and comparison school samples in three of these four sites (Table 2.1). A decision was made to restrict the analyses to black students in the samples where the population was predominantly black.

   With these restrictions as a starting point, a comparison was made between the clinic and non-clinic samples on other characteristics (Table 2.2). Only in Jackson was there a significant gender difference between the clinic and comparison sample. In Muskegon, Jackson, and Dallas, the students in the clinic schools were significantly older than the students in the comparison schools. In Gary and Muskegon, students in the comparison schools had higher grade point averages, but the absolute differences were small — 0.1 on the traditional 4.0 scale. In Muskegon and Dallas, students in the comparison school were more likely to report a desire to continue their education beyond high school. In Muskegon, Jackson, and Dallas, the families of the sample surveyed in the clinic schools were less likely to have two parents in the home, were more likely to receive income from welfare and social security, and were more likely to receive free lunches and food stamps. In order to control for the possible effects these differences may have had on the outcome variables of interest, these characteristics served as control variables in regression analyses (described later in text and Technical Notes).

3. The pre/post design is commonly considered a stronger design than the experimental comparison design because it is expected that the sociodemographic composition of the two samples from the same school will be more similar than samples from two different schools. Given a two-year time span between the pre-clinic and post-clinic surveys, however, characteristics of the student population may change in response to changes in the community. For example, Quincy experienced an economic improvement during the two years between surveys, explaining perhaps the significant differences in the pre- and post-clinic samples with regard to the percentages of families receiving food stamps and free lunches (Table 2.2).

An additional difference between the pre- and post-clinic samples that could not be explained was an increase in the percentage of blacks attending the school — from 89% to 92% (Table 2.1). As with the four clinic/non-clinic comparisons, analyses were restricted to the black students in the sample.

In San Francisco, differences in parental consent procedures between the first and second survey administrations may explain differences between the two samples with regard to race (Table 2.1): a smaller percentage of blacks and a larger percentage of Hispanics completed the second survey. Because blacks, Hispanics, and Asians comprised more nearly equal percentages of the total enrollment than in the other five sites, racial differences for the two samples were controlled for by weighting the post-clinic sample so that the racial distribution corresponded to that of the baseline sample.

Though there were no significant non-racial differences between the pre-clinic and the post-clinic samples, the general pattern of higher socioeconomic status in the post-sample is evident in better grade point averages, higher educational aspirations and less likelihood of receiving welfare or food stamps (Table 2.2).

4. In most of the sites, the survey was administered during a single class (such as English) that all students took sometime during the day. By administering the survey only to part of the school during each school period, there was much greater control over the administration of the survey.

   In Gary and Jackson, the survey was administered first in one school, and then immediately afterwards in the other. In Dallas, only a few days elapsed between the two administrations. In Muskegon, the survey was administered first in the clinic school, and then about six months later, in the comparison school. Finally, in both Quincy and San Francisco, the pre-clinic and post-clinic surveys were administered almost exactly two years apart. In all of the sites, the surveys were scheduled so they would not coincide with any events (e.g., big football games, spring break, or prom night) that might differentially affect the responses obtained from students at the clinic or comparison school.

5. Because the questions in the health survey administered in the six sites changed over time, there arose the issue of which versions to use in this test-retest analysis. The following conservative guidelines were used. Whenever two different versions of a particular question with comparable response categories had been asked, the two maximally different versions were included in the test-retest questionnaires. When there were two different versions without comparable response categories, then the earliest version with the lowest apparent reliability was used. The use of these guidelines would tend to lower reported estimates of an item's reliability.

   It appeared likely that motivation to answer the questionnaire thoughtfully a second time in two weeks would be low, and that this lower motivation might falsely and adversely affect the results of the second questionnaire. In order to increase motivation, students received a pass for three free games of miniature golf at a local student hangout. This may have improved motivation.

6. Several kinds of evidence indicated that students generally answered the questions on the survey in a serious manner. First, less than two percent of the students who had parental consent to participate chose not to do so, and very few failed to complete it once they began. Second, the students appeared very quiet and thoughtful while answering the questions. Third, many students did not appear to be anxious about issues of confidentiality. Fourth, nearly all students reported that they thought the survey asked good questions. Only rarely did they say it was too personal or otherwise express dissatisfaction with the survey.

CHAPTER 3

The Six Clinics and Their Communities

The six school-based clinics evaluated in this study were located in high schools in different parts of the country. All served low-income populations, provided primary health care, and were open daily during school hours. Despite these similarities, there were major differences in the clinics' emphases, activities, size, staffing patterns, and years in operation.

This chapter describes the clinics and the schools as they operated at the time of the evaluation. These descriptions are based primarily on information obtained from school and clinic staff during site visits, and from firsthand observation of the communities themselves. Tables 3.1 and 3.2 provide a quick comparison of the schools and clinics on specified characteristics.

Because of the significant interest in the potential of school-based clinics to have an impact on rates of teenage pregnancy and this study's emphasis in assessing that potential at these clinics, considerable attention is paid in these descriptions to the clinics' family planning programs. This does not necessarily reflect the clinics' own goals or objectives, however.

Roosevelt High School Gary, Indiana

When the steel mills closed a number of years ago, Gary's economy suffered a major blow. Despite several attempts to attract new businesses and promote urban renewal, businesses continued to leave and unemployment remained high. As a result, at the time of the study the inner city's core contained many vacant lots and empty buildings that were slowly decaying and falling down.

Though near the center of Gary, Roosevelt High School, was well-managed and offered a variety of innovative programs for its 1700 students. The student body was over 90% black, reflective of the fact that Gary, itself, is predominantly black.

TABLE 3.1
Clinic school characteristics[a]

Characteristic	Gary	Muskegon	Jackson	Dallas	Quincy	San Francisco
Approximate enrollment at time of study	1700	800	700	1100	800	1800
Racial/ethnic composition[a]						
Black	98	94	99	76	89	30
Hispanic	1	1	0	21	0	20
Filipino	—	—	—	2	—	37
White	—	4	—	1	11	3
Other	1	1	1	—	—	10

a Based on Student Health Survey data.

TABLE 3.2
Clinic characteristics

	Gary	Muskegon	Jackson	Dallas	Quincy	San Francisco
Date clinic opened	1981	1981	1979	1970	1986	1985
Staff						
Physician	Part-time(2)	Part-time(1)	Part-time(1)	Full-time(1) Part-time(1)	Part-time (rotating)	Part-time(1)
Nurse practitioner	Full-time(1)	Part-time(2)	Part-time(1)	Full-time(2)	Full-time(1)	Full-time(1)
Nurse			Part-time(1)	Full-time(1)		
Nurse assistant				Full-time(2)		
Secretary/ receptionist	Full-time(1)	Part-time(1)		Full-time(2)	Full-time(1) Part-time(1)	Full-time(1)
Social worker	Full-time(1)			Full-time(1) Part-time(1)	Part-time(1)	Part-time(2)
Health educator		Full-time(1)	Part-time(1)			Full-time(1)
Dentist				Full-time(1)		
Dental hygienist					Part-time(1)	
Nutritionist	Full-time(1)					
Family planning services						
Pregnancy testing/ counselling	Yes	Yes	Yes	Yes	Yes	Yes
Contraceptive counselling	Yes	Yes	Yes	Yes	Yes	Yes
Contraceptive vouchers		Yes				
Contraceptive dispensation			Yes	Yes	Yes	
Special programs						
Dental				Yes		
Sports/health examinations	Yes	Yes	Yes	Yes	Yes	Yes
Infant day care			Yes			

For many years, the school had a nurse who fulfilled such traditional nurse's functions as screening students and providing first aid. In the late 1970s, however, many professionals in the community working with youth concluded that adolescents' health needs were not being met by existing services. They created a community health committee to study ways to increase teenagers' access to health care. The committee recommended that a school-based clinic be opened at Roosevelt. With funding from the Indiana Department of Maternal and Child Health, the clinic opened in the fall of 1981. This was the first school-based clinic in the country to be administered by the school district itself, rather than by an outside traditional medical provider.

The clinic was located in a separate office of a larger health suite, adjacent to the nurse's office in that suite. It provided primary and preventive health care. According to clinic reports, it addressed obesity, nutrition, anemia, pregnancy, sexually transmitted diseases (STDs), drug abuse, smoking, family concerns, peer problems, and stress. It also conducted health and sports physicals. The school nurse continued to do health screenings required by the school system, and often was the first to see students who came to the health suite because they felt ill. When appropriate she referred sick students to the clinic.

The Gary clinic placed greater emphasis than some other clinics on providing information and counseling and less stress than other clinics on treating medical problems or writing prescriptions. With a full-time nutritionist on staff, the clinic devoted consider-

able attention to nutrition, partly because of weight problems among students and partly because of widespread anemia. In personal interviews, staff members reported considerable success in reducing the incidence of anemia.

With regard to family planning services, the clinic provided contraceptive information and counseling, conducted pelvic exams if appropriate, and made referrals to family planning providers in response to student requests. The clinic did not prescribe or dispense birth control, however.

To inform students of its services, the clinic gave all freshmen a tour of the facility; made announcements over the school intercom; handed out pamphlets to students during orientation; and made presentations on such topics as smoking and nutrition.

The staff included four full-time employees: a nurse practitioner who provided care, coordinated the clinic and served as project director; a nutritionist; a social worker; and a secretary/receptionist. In addition, a family practice physician served as medical director, and an OB/GYN physician provided medical consultation in special cases. The staff was racially integrated and appeared to relate well to students.

Muskegon Heights High School Muskegon Heights, Michigan

With only 14,000 people, Muskegon Heights has a small-town feeling, although it is physically adjacent to much larger Muskegon. The population of Muskegon Heights is predominantly black.

In 1980, the school principal and the superintendent of the school district became alarmed at the high pregnancy rate among the approximately 800 students in Muskegon Heights High School. After visiting school-based clinics in St. Paul, Minnesota, the officials decided to open a clinic in Muskegon Heights. Following meetings with parents and community groups and the formation of an advisory board, they obtained the necessary approval and funding and opened a clinic in 1981. Two years later, a clinic opened in the nearby middle school.

The high school clinic was located on the third floor of the school building. Although it was not in an area where students normally walk, it was easily accessible. Initially, the clinic occupied a small space divided into a tiny waiting area and an area that served simultaneously as both an examination room and an office area. It expanded in 1985 to include four small rooms.

The clinic's major goal was to provide medical, educational, and counseling services to students. Students with serious medical problems were referred to an appropriate community-based health care provider, usually their family physician. When students were sent home because of illness, their parents were notified and a written home-care plan was provided if ongoing care was needed. Because of the school's high pregnancy rate, the clinic paid considerable attention to pregnancy prevention issues. It provided birth control consultation and education and conducted pelvic exams. Although the clinic did not dispense contraceptives, it issued vouchers for birth control pills and condoms that enabled students to obtain these methods free-of-charge at a Planned Parenthood clinic about a mile away.

The clinic often required female students to make four visits in order to obtain contraceptives from the Planned Parenthood Clinic. The first visit entailed a 45-minute educational session in which the student's decision to be sexually active and the major methods of birth control were discussed; during the second visit, a medical history and workup were completed; the third visit included a 15 to 20 minute physical exam; and during the fourth, at the Planned Parenthood clinic, contraceptives were dispensed. Occasionally the first three visits were completed in one day, but this was considered undesirable by clinic staff because students were out of class for too long. The requirement of four visits was of concern, however, because the long wait and effort required to visit the clinic four times was a barrier to some adolescents who wished to obtain contraceptives. It may be, however, that the long individual counseling session at the first visit motivated students to return for the remaining appointments.

During the course of this project, the clinic instituted procedures to follow up students who received vouchers for birth control. Those who did not pick up their supplies at the family planning clinic were reminded to do so. About one-quarter of the students who

were reminded by the clinic eventually did get their supplies. According to clinic and Planned Parenthood records, about three-fourths of females given vouchers for pills and two-thirds of males who received vouchers for condoms actually picked up their supplies at Planned Parenthood.

Planned Parenthood dispensed three cycles of pills on the student's first visit and six cycles on the second. Students who did not return after the first three months for additional cycles were not contacted by either Planned Parenthood or the school clinic.

The clinic implemented or coordinated a variety of educational programs in the school. The clinic health educator, for example, made presentations in many of the ninth and tenth grade classes on sexual decision-making, reproductive anatomy and physiology, and contraception. The school health teacher devoted about two to three weeks of the ninth grade health class to teenage pregnancy and STDs. Finally, the clinic arranged every year for the Urban League of Muskegon to present a program on male responsibility to all ninth grade males. Thus, most students received at least some sex education during their first two years in high school.

The clinic also coordinated educational efforts in other areas. In 1985/86, for example, it sponsored the local Mental Health Players, who presented a program on alcohol abuse; a local dental hygienist who talked about dental hygiene; and the Sickle Cell Program of Muskegon, which conducted a school-wide program on sickle cell anemia, including screening.

Until 1987, the clinic sent a letter to all parents describing its services and informing them that if they did not want their child to use the clinic, they could notify the principal. Only one parent of more than 800 students did so. This default consent procedure made it easy to serve students.

Since 1987, however, parents have had to return each year a signed letter giving permission for their child to receive clinic services. Only about two-thirds of the parents did so in 1987. Staff fear that this requirement has reduced the number of students receiving services.

During the period of this study, the clinic was staffed by a physician (one hour per week), an OB/GYN nurse practitioner (four hours per week), a nurse practitioner (30 hours per week), a health educator (30 hours per week), and a receptionist (20 hours per week). The staff all were middle-class, white and young. However, the staff members apparently related well to their clients. Data presented in Chapter 4 show that the clinic had a high utilization rate.

Lanier High School Jackson, Mississippi

Lanier High School is located in one of Jackson's poorest neighborhoods. Most of the residences are small, single-family homes; some well-kept, others not. The community is almost entirely black.

The Lanier clinic and those in four other high schools and two junior high schools in and around Jackson were administered by the Jackson Hinds Community Health Center. Some of the staff rotated from one school to another. Clinic records for each patient were maintained at both the Community Health Center and the school clinic.

The founder and director of the school-clinic program, Dr. Aaron Shirley, grew up in the Lanier High School neighborhood. He was widely known, well-liked, and highly respected in the community. On the streets, in restaurants, and elsewhere, he often ran into former patients. Invariably he reached out, asked how they're doing, and expressed affection. Partially because of his efforts, the community strongly supports the school clinic. Other members of the clinic staff at the time of the evaluation were also from the community and generated support for the clinic. This clinic, therefore, provided a strong example of how personal outreach can enhance a clinic's standing in the community.

Although old and somewhat dark and dreary, Lanier High School was reasonably well maintained, with little graffiti on the walls. Its approximately 700 students were well-behaved.

The Lanier clinic opened in 1979 to provide health care to students who could not or were not obtaining it elsewhere. The clinic occupied two small offices near the front

entrance of the building, which students passed frequently during the day. It had additional space elsewhere in the building where it held group activities. It also operated a day care center in a separate structure just behind the school.

The clinic provided primary health care. However, it appeared to focus more attention on high-risk students and on risk-taking behaviors than did some of the other clinics.

Part of this focus was manifested in the clinic's psychosocial assessment, a written questionnaire answered voluntarily and confidentially by students on their first visit. It included questions about relationships with family and friends, risk-taking behaviors, stress, depression, and health problems. The staff reviewed the completed questionnaire with the student and discussed any problems or risk-taking behaviors it identified. If serious problems were indicated, appointments were set up in the clinic or the student was referred to another health agency.

The Lanier clinic also gave considerable attention to reducing unintended pregnancies among students. Sexually active students were typically identified during the psychosocial assessment and were scheduled for a family planning consultation within a week. At this session, different birth control methods (especially condoms and pills) were discussed, as were ways to avoid situations that could lead to unprotected sex. Typically, this appointment lasted 15 to 20 minutes.

A subsequent appointment was made for the student to see the clinic doctor within a few days. The importance of using birth control was stressed in this session, which generally lasted about 20 minutes. Two cycles of pills were usually given out at this visit and on subsequent visits. The clinic had a good follow-up system: if a pill user did not return within two months for additional cycles, she was contacted and asked to come to the clinic.

The clinic gave condoms to males, but did not emphasize this method and distributed few condoms. More male students began to obtain condoms from the clinic as concern about AIDS increased.

The Lanier clinic was one of the few school-based clinics in the country that administered an infant day care center for teen mothers in the school. It could accommodate up to 20 to 30 infants or very young children, enabling their young mothers to return to school.

Each year, the clinic staff gave three presentations on general health, its services, and AIDS to the entire student body. They also held discussion sessions with groups of 15-20 students during gym classes or study hall. Students were expected to attend, and most did. Each group met six times for about an hour each session and covered the basic topics in sex education, including birth control. At the time of the evaluation, there was no other sex education in the school.

The clinic staff included a physician (one and a half days per week), a nurse practitioner (one day per week), a licensed practical nurse (one day per week), two nurse assistants (two days per week), and an educator/counselor (two days per week). Thus, while the clinic was open every school day, different staff were there each day, and if a student wanted to see a particular staff person, he or she had to make an appointment for the appropriate day.

Pinkston High School Dallas, Texas

Pinkston High School is located in West Dallas, just across the Trinity River from the glass and steel skyscrapers of downtown Dallas. West Dallas is more residential and less populated. The high school, with an enrollment of around 1100 students, is adjacent to a large housing project which was partially vacant at the time of the study.

The population of West Dallas was predominantly black and Hispanic. The community was largely a mix of young (under 20) and old; there were disproportionately few adults of working age in the community.

The Pinkston clinic is the oldest school-based clinic in the country. It opened in 1970 and was beginning to serve children of its former clients when the study was undertaken. Because of its long history, the clinic is especially well-established and accepted in the community.

The clinic was also the largest school-based clinic in the country in terms of both space and staffing. Unlike all other clinics, the Pinkston clinic served adolescents from the larger community as well. At the time of the evaluation it had a large waiting room, several examination rooms, offices for staff and counsellors, and a dental suite.

The composition of the staff varied slightly from year to year, but at the time of the study it included a clinic director, a full-time physician, a part-time physician, two full-time nurse practitioners, a full-time social worker, a part-time social worker, a screening nurse, two clerks, and a full-time dentist. This clinic staff had good rapport with the adolescents they served. When the staff walked through the school halls, many students stopped to engage in friendly banter. Several of the staff had been in the community for many years, and often knew students' siblings or other family members.

The clinic was part of a larger Children and Youth (C & Y) Project, administered by the University of Texas Health Science Center, which included a pediatric clinic. Thus, some clinic users had been treated by the Project since infancy; when they reached a certain age, their records were automatically transferred to the Pinkston clinic. Unlike the other clinics in this study, the Pinkston clinic served adolescents aged 12 to 18 regardless of whether they attended Pinkston High School.

At the time of the evaluation, the clinic's principal goal was to provide primary health care. Because there were normally two or more nurse practitioners and one physician on duty, the clinic could provide a wide range of medical services. Many acute illnesses, as well as chronic problems such as asthma, were handled in the clinic. Many medications also were prescribed and dispensed.

The clinic shared the Dallas C & Y's emphasis on prevention. It focused on psychosocial and behavior-induced problems, such as drug and alcohol abuse, accidents, violence, suicide, mental illness, and pregnancy. All entering students were given appointments for a health maintenance exam. Moreover, whenever a young person moved up from the pediatric clinic, an appointment was automatically set up at the Pinkston clinic. The health maintenance examination lasted about one and a half hours; it included visits with the physician or nurse practitioner, the social worker, the screening nurse and the dentist, and it provided an opportunity to discuss a wide range of potential medical and psychosocial problems.

Issues involving sexuality were handled during any routine visit. Students were counseled about abstinence and birth control. If a female wanted a contraceptive method, she was advised to come back at the beginning of her next period. (Condoms and vaginal suppositories given for the interim period.) At that time, the appropriate method of birth control was prescribed and dispensed, and its proper use thoroughly explained. The number of pill cycles that were dispensed varied considerably from one student to another. Follow-up appointments were not made, and there was no formal follow-up system, although students were encouraged to return when they needed additional cycles.

Though the clinic did not seem to be significantly involved in the school itself in terms of educational interventions or peer counseling, the clinic was successful, through the provision of routine information about its services, in bringing large numbers of students into the clinic, and providing thorough, individual attention.

Shanks High School Quincy, Florida

Quincy is 20 miles west of Tallahassee in a rural area. Its population of less than 50,000 is about two-thirds black. Quincy and the surrounding area are poor: about a third of the population lives below the poverty level and about half is below 125% of the poverty level. Limited access and inability to pay have apparently prevented many people from Quincy and surrounding Gadsden County from receiving needed health care. The county's high infant mortality rate, about three times the national level, is an indication of the population's need for better, more accessible health care.

For many years, Shanks High School, with an enrollment of around 800 tenth- to twelfth-grade students, provided students with passes entitling them to visit the county health department located about a mile away. In early 1985, however, the school ended that policy, making it more difficult for students to go to the health department during the school day. In addition, the health department acquired new facilities about five miles

farther from the school. Since some students could no longer obtain needed care, the health department opened a clinic on the school campus in the spring of 1986. Because of insufficient space in the school, a three-bedroom, one-and-a-half-bath mobile home was brought to a central location on campus and converted to a clinic.

About 18 months later, however, the Governor of Florida ordered the clinic moved off the school campus in response to political pressure from conservatives. Consequently, the trailer was moved to city-owned property about 100 yards across a small road that led to the school parking lot. Although still easily accessible, students had to obtain a pass from a teacher or another school authority to leave the school grounds to attend the clinic.

The clinic's objectives focused on providing health care more effectively to the medically underserved adolescent population and on providing health education resources to classroom teachers. The clinic offered a wide range of services, including counseling for stress and depression; first aid or treatment for headaches and minor illnesses, sports and other injuries, and upper respiratory infections; and family planning. Clinic staff also gave presentations about clinic services, as well as preventive health and sexuality education in health and other classes.

Because of high pregnancy rates in the community, family planning received considerable emphasis in the clinic. If a student indicated during a routine clinic visit that he or she was having intercourse, the staff tried to determine whether the student already was using birth control. If not, abstinence and appropriate family planning methods were discussed.

Similar discussions were held when a student visited the clinic specifically for family planning reasons. Staff encouraged students to talk about their decisions with their parents. The visit lasted about 15 to 20 minutes. If a female student wanted a prescription method, she was scheduled for another appointment within two weeks and was given condoms for the interim period. If she was at the end of her menstrual cycle or just beginning menses, every effort was made to see her as soon as possible for this second visit (that same day if possible). At the second visit, a health history and medical exam were completed, and the student was given three cycles of pills. The clinic had a system to ensure that students returned for their family planning appointments.

The clinic had a very strict parental-consent policy. Not only was written consent required before services could be provided, the consent had to be verified either by telephone or a notarized letter. It is not known the extent to which this process might have prevented some students from using clinic services.

Local doctors served students in the clinic on a rotating basis for two to three hours each week. The nurse practitioner was highly qualified and had great rapport with the students. With the establishment of this clinic, the nurse practitioner had many responsibilities, including clinical services at other sites.

Despite staffing problems and more involved consent procedures, the utilization rates for this clinic were high. This may be because the school clinic was opened to compensate for the health department's move to another location that was more difficult for students to reach. Both staff and clinic records were transferred from the health department to the school clinic; thus, this clinic's high utilization rate probably reflected a substitution of providers effect (discussed in more detail in Chapters 5 and 6).

Balboa High School San Francisco, California

Balboa High School is located south of downtown San Francisco in a suburban residential neighborhood. The community surrounding the high school appears reasonably prosperous. The single-family houses are well kept, and the lawns are well-tended. Despite the outward appearances of the immediate neighborhood, the larger community from which the school draws students has a 50% higher poverty rate than the San Francisco metropolitan area and the percentage of its population receiving AFDC was twice that of San Francisco's.

Balboa High School is a handsome building with a Spanish flair, although at the time of the evaluation it was in slight disrepair. The student body* was ethnically diverse. Filipinos comprised the largest group, but there were also substantial numbers of blacks and Hispanics. The clinic opened in 1985 under the sponsorship of the San Francisco Department of Public Health. It was located in a former school machine shop; while it was not centrally located, the clinic was easily accessible. The clinic was spacious, attractive, and comfortable. There were big couches, soft chairs, art work, and posters that appealed to teens. Student-made papier-mache masks also hung on the walls.

Like the other clinics, the Balboa clinic provided primary medical care. It treated minor acute problems; conducted health and sports physicals; tested for pregnancy and STDs; provided immunizations; and prescribed and dispensed some medications.

One of its more unusual features, and also one of its strengths, was its case-management program for high-risk youth. The school counselor and teachers identified high-risk students who had low grades, frequent absences, or signs of depression and asked these students to visit the clinic. Students who responded, then participated in the case-management program. Most of the students in this program were treated for depression, thoughts of suicide, troubled personal relationships, child abuse, or family violence. Typically, they were seen at the clinic three to six times, and, as appropriate, were then referred to other agencies. The clinic encouraged involvement of other family members in the students' treatment through family counseling sessions.

Although the clinic placed considerable emphasis on preventing STDs (especially AIDS) and unintended pregnancy, the clinic did not prescribe or dispense contraceptives. A significant number of students asked for condoms, but they were referred to drug stores or to the community health clinic less than two miles from the school, where condoms could be obtained free-of-charge by anyone. Even though the clinic did not prescribe contraceptive products, it strongly encouraged students to use condoms (and other contraceptive methods) if they were sexually active.

The clinic's emphasis on condoms was reinforced in the classroom by excellent AIDS education and sexuality education programs. A four-session AIDS education program included a presentation by a person with AIDS. The clinic educator conducted classroom presentations on sexuality. She trained about 20 peer counselors and, in the clinic, she counseled students about AIDS. Notably, she was voted "most popular teacher" in 1987. In addition, the clinic sponsored health fairs and was a site in an AIDS rap contest in which students could compete for cash prizes.

All of the clinic and school AIDS activities were reinforced by the larger San Francisco community, which has had one of the highest AIDS rates in the country. The community implemented a variety of media and other public health programs to reduce the transmission of HIV, the virus that causes AIDS.

The clinic staff included a part-time nurse practitioner who was the clinic coordinator; a part-time physician (eight hours per week), several rotating physicians who collectively worked at the clinic four to eight hours per week; a case-management supervisor; one full-time and one part-time case manager; a health educator; and a full-time receptionist. For the years of the evaluation, there were few medical personnel available; thus, medical care was available only about four hours each school day. When students sought medical care outside these hours, they were asked to return at another time; not all did so, according to the staff. The health educator and the counselors, on the other hand, were available all day and provided greater continuity of care.

* The enrollment decreased at Balboa from about 2000 students at the time of the pre-clinic survey to about 1800 two years later when the second survey was administered.

Conclusion

Students in these six schools were served by clinics that provided a wide range of primary and preventive health care services. Consistent with the mix of goals and objectives driving their operation, they differed with regard to the emphasis they placed on reproductive health care. While all clinics provided contraceptive counseling to students who sought it, some clinics more actively promoted this service than others. In three sites — Jackson, Dallas, and Quincy — students were able to obtain contraceptives at the clinic, and in Muskegon, students could receive vouchers to obtain contraceptives at a local family planning clinic. These four schools differed from each other with regard to the ease with which contraceptives were obtained. Some clinics required more visits than others, and some clinics provided more follow-up than others.

Because there was no single clinic model represented by these six clinics, it is unrealistic to expect great uniformity in the results of a large scale evaluation of them. These descriptions were presented to provide some idea of the variety of goals and programs that define school-based clinics.

CHAPTER 4

Clinic Utilization

The primary purpose of school-based clinics is to provide comprehensive primary health care to the students in their respective schools. Thus, the extent to which clinics are used by students is a starting point for evaluating them. Providing health care to adolescents is not an easy task, and the presence of a clinic within a school does not automatically mean that students will seek needed care there. According to one recent analysis, it is reasonable to expect 30%, 50% and 60% of the students to enroll in a clinic during its first, second and third years of operation, respectively. The percentage of students actually using the clinics would be lower — increasing from 20% the first year to 40% in the third (31).

Both clinic records and survey data were used to measure utilization in several different ways which are discussed below. The use of these two sources of data collected independently of each other and the consistency of the results indicate a high degree of validity of the data. In addition, an attempt was made to determine characteristics of clinic users, the purpose of clinic visits and reasons provided by the students for use and nonuse of the clinic.

TABLE 4.1

Clinic utilization by site, in percentages

	Gary	Muskegon	Jackson	Dallas	Quincy	San Francisco
Measure of clinic utilization						
	(n=1700)	(n=802)	(n=708)	(n=1129)	(n=815)	(n=17899)
% of all students using clinic in year[a]						
85/86	NA[b]	54	NA	80	NA	NA
86/87	24	70	63	na	66	25[c]
% of students surveyed who ever used clinic[d]						
	(n=660)	(n=477)	(n=317)	(n=495)	(n=701e/ n=728)	(n=433)
	60	82	66	83	65/72[e]	48
% of students surveyed who ever used clinic by # of years at school[d]						
1 Year	na	71	na	74	66	41
2 Years	na	84	na	82	73	50
3 Years	na	89	na	88	na	na
4 Years	na	89	na	89	na	na

a Based on clinic records.
b Not available.
c Based on calendar year 1987, not academic year.
d Based on Student Health Survey.
e Year 1/ Year 2 of evaluation.

Clinic Use Patterns

Students' use of the clinic was measured in terms of the percentage of students ever visiting the clinic, the percentage ever visiting the clinic in a given year, and the number of visits per student. The percentages of students who used the clinic in a given year, and the percentages of students ever using the clinic are presented in Table 4.1. The single-year results were obtained from clinic records, while the "ever-used" results were based on survey data. Though there may be some error in the estimates of utilization due to errors in estimates of school enrollment, these errors are expected to be randomly distributed among sites. The consistency found between clinic records and survey data also provide a strong indication of the validity and reliability of the results presented.

Both indices demonstrate impressive rates of utilization. In four of the sites, roughly 60% to 80% of the students used the clinic during a single year, while in the remaining two sites, about one-fourth of the students used the clinic during a single year. Between 48% and 83% of the students had ever used the clinic.

According to the survey data, the utilization rates were lowest in San Francisco, but it was one of the two newest clinics among the six evaluated. Furthermore, the clinic served over half the students during its two years of operation which is an impressive achievement.

The high utilization rates found in Quincy (66% during the first year, and 73% during the second) are probably not typical of new clinics nationally. These may be explained in part by the fact that this clinic provided services formerly offered by the county health department to students during school and that after the clinic opened, the health department moved further away from the school. Muskegon's rates also were very high, especially given its small staff (two full-time people and two part-time people).

TABLE 4.2

Number of student visits to clinic in a single year, per site[a]

Gary	Muskegon	Jackson	Dallas	Quincy	San Francisco
(86/87)	(85/86)	(86/87)	(85/86)	(1986)[b]	(1987)[b]
2791	1859	3341	4489[c]	4399	2357

a Based on clinic records.
b Based on calendar, not academic year.
c More than 6,000 additional visits were made by youth not attending clinic school.

The highest clinic utilization rates were achieved by the Dallas clinic: 80% of the students used the clinic in the 1985/86 school year according to clinic records, and 83% of the students surveyed reported ever using it. The Dallas clinic was the oldest clinic, had a large staff and systematically contacted every new student each year to make appointments for health maintenance exams.

Table 4.1 also includes the percentages of students who ever had used the clinic by the number of years they had attended the school, according to survey data. For the schools where this information was available, clinic use increased with the time students attended the school; differences in percentages of students ever using the clinic ranged from 41% to 50% over a two-year period in San Francisco, where the school-based clinic was newly instituted, to an increase from 74% to 89% in Dallas, where the clinic had been operating since 1970.

The percentages of students using the clinic during their senior year in Muskegon and Dallas were higher than the percentage ever using the clinic. This was because the latter measure uses the total enrollment as its denominator, while the fourth-year results include in the calculations only students having attended these schools for four years.

Table 4.2 presents the total number of student visits to each clinic in specified years. The Dallas clinic served by far the largest number of students. The total number of visits to this clinic by students attending the high school at this site was 4489 during the 1985/86 school year. In addition to this, over 6000 visits were made by youth not attending the site school.

TABLE 4.3

Percentages of clinic users by number of visits in a single year, by site[a]

Clinic visits per user	Gary (408)	Muskegon (561)	Dallas (446)	San Francisco (447)
1	23	31	24	40
2	35	18	14	23
3	13	13	13	13
4	10	6	8	7
5	5	6	8	5
6-7	6	10	10	4
8-9	3	6	7	3
10-14	3	7	9	4
15-19	1	1	4	0
20 +	0	1	3	1

a Based on clinic records.

TABLE 4.4

Percentages of clinic users by number of times they ever used the clinic, by site[a]

visits/user	Gary (396)	Muskegon (369)	Jackson (207)	Dallas (411)	Quincy Year 2 (524)	San Francisco (209)
1	30	21	13	15	18	42
2	27	20	16	12	19	22
3	14	14	11	14	12	15
4	8	11	9	11	9	5
5	9	10	8	11	11	4
6-7	4	9	14	10	5	3
8-9	2	2	3	4	3	3
10-14	4	7	17	13	11	4
15-19	1	2	5	3	4	0
20 +	1	4	4	7	8	2
Mean	3.2	4.8	7.0	7.3	5.9	2.9
Median	2.0	3.0	4.5	4.0	3.5	2.0

a Based on Student Health Survey data.

Table 4.3 summarizes the number of clinic visits per student in a single year, according to clinic records at four sites. This measure is related to the clinic's potential impact the clinic might have on its clients. These results indicate that many of the students who used the clinic did so infrequently; in all of these schools, over half of the users visited the clinic three or fewer times during the year.

Table 4.4 summarizes information obtained from the Student Health Survey concerning the number of times students had ever used the clinic. Percentages are reported in terms of those students reporting any clinic use. The trends for single-year use and ever use are basically the same, with the largest percentages of students ever visiting the clinic three or fewer times. However, between 8% of the clinic users in Gary and 29% in Jackson (representing 3% and 17% of the total sample at these same sites) had ever used the clinic eight or more times. These students could be considered "core" users.

The results on clinic utilization indicate that use of clinics increased over the history of the clinic and over the student's experience in a clinic school. As the students had been at a clinic school for a longer period of time, they had a greater likelihood of getting sick or otherwise needing services provided by the clinic. In addition, they had more information available to them about the clinic — not only in an official school context through classes and school assemblies, but also through friends and peers. Official sources may have provided information concerning services provided and hours of operation, while friends reported on their interactions with the staff and how well they could be trusted.

To summarize, those clinics that had the larger staffs, that provided a wider range of services, and that had been operating longer — Jackson and Dallas — demonstrated the greatest utilization by students.

Sociodemographic Characteristics of Clinic Users

In Appendix D is an analysis for each site of the percentages of students with various personal and socioeconomic characteristics who used the clinic, which shows the mean number of visits and the mean number of services used. The major conclusion to be drawn from these data is that the clinics served a rather heterogeneous group of students and had broad appeal regardless of the student's race, age, gender, or poverty status.

However, differences were found on specific characteristics in some schools. In Muskegon, Jackson, Dallas, and Quincy, females were significantly more likely to have used the clinics more times or used more services than males. In Muskegon, 86% of the males and 76% of females ever had used the clinic, but the mean use for females was 5.1 times compared with 3.1 times for males. The gender differences found in these schools may be related to the types of services offered: the clinics in these four schools had the strongest reproductive health and prenatal programs.

Race and age were both related to the utilization of services. In Muskegon, Dallas, Quincy, and San Francisco, black students were more likely ever to have used the clinic, to have used the clinic a greater number of times, and to have used a greater number of services than were nonblack students. In San Francisco, whites and Hispanics had used the clinic about half as many times as blacks, and Asians had used it even less than whites or Hispanics. In Gary and Jackson, comparisons between blacks and nonblacks were not made due to the low numbers of nonblacks in the sample.

Age was related to cumulative utilization in Gary, Muskegon, Jackson, and Quincy: older students were more likely ever to have used the clinic and to have used it more times. These relationships were not found in Dallas, where students were strongly encouraged to receive a health maintenance exam when they first entered the school, nor in San Francisco, where the clinic had been open only two years.

Measures of academic aspiration and achievement were generally unrelated to clinic use. In only three sites were any relationships found between family structure or socioeconomic (SES) characteristics and clinic use. In Gary and Muskegon, students living with neither parent used the clinic a greater number of times than did other students, and in Quincy, these students were more likely ever to have used the clinic. Also in Quincy, students receiving food stamps used more services and visited the clinic more frequently than students not receiving food stamps.

Table 4.5 provides a profile of students who reported ever having used the clinic. Clinics served a greater number of females than males, though these figures were similar to the proportions of the total sample. The racial composition of clinic users also generally reflects the racial composition of the schools in which the clinics are found. In Dallas, about one-fifth of the clinic users was Hispanic and the other four-fifths were black. In San Francisco, the clinic population was more equally divided among blacks, Hispanics, and Asians. In the remaining schools, the clinic population was over 90% black.

The age of clinic users represented a fairly normal distribution, with the highest usage among 16- and 17-year-olds. In Gary, however, the clinic sample had fewer 16-year-olds than either 15- or 17-year-olds. In Quincy, the modal age was 17 years for the clinic sample.

Many clinic users came from low-income and/or single- or no-parent households. From 48% to 68% lived with one or neither parent; 6% to 40% of users' families received food stamps; and 12% to 77% had family members who participated in a free lunch program.

TABLE 4.5

Percentages of clinic users by specified characteristics, by site[a]

	Gary (396)	Muskegon (369)	Jackson (207)	Dallas (411)	Quincy (Year 2) (524)	San Francisco (Year 2) (209)
Gender						
Female	60	59	64	59	53	56
Race/ethnicity						
Blacks	97	95	99	78	96	27
Whites	3	3	1	1	4	3
Hispanics	0	1	0	21	0	31
Filipino	0	0	0	0	0	37
Other	0	1	0	1	0	2
Age						
14	9	12	0	4	0	4
15	26	25	12	21	16	17
16	19	24	21	30	30	41
17	28	24	36	25	37	28
18+	17	15	31	20	17	10
Grade point average						
0	1	2	0	1	0	2
1	8	15	4	3	8	11
2	54	53	48	39	56	37
3	34	22	44	48	31	37
4	3	8	4	9	5	13
Future school plans						
Quit High School	1	0	1	1	0	1
Finish High School	33	46	31	60	36	17
College or additional training	66	54	68	39	64	82
Number of parents in home						
0	9	13	12	12	15	11
1	47	52	56	45	43	37
2	44	35	32	43	42	52
Family receipt of food stamps						
Yes	37	31	40	22	17	6
Family member infree lunch program						
Yes	38	62	77	59	49	12

a Based on Student Health Survey data.

Core users

In two sites — Dallas and Quincy — where over 25% of the clinic users could be defined as 'core' users, because they visited the clinic a total of eight or more times, an analysis was done in order to describe these students in comparison with nonusers and more moderate users.

Table 4.6 shows selected sociodemographic characteristics for nonusers, moderate clinic users (at least one, but fewer than eight total visits), and core users. As seen earlier, females used clinics more than males. In Dallas, equal percentages of moderate and core users were females, while in Quincy, almost 70% of core users were females, compared with about 50% of both nonusers and moderate users. Mean ages were similar for the three groups in Dallas (16.3 to 16.5 years), but in Quincy, core users were slightly older (16.8 years) than those in the other two categories (16.4 years). The percentages of each group who were black increased as use increased — from 67% of non-users to 79% of core users in Dallas and from 84% of non-users to 96% of core users in Quincy — while the corresponding percentages of non-blacks decreased.

The percentages of non-users by grade level was lowest in the 12th grade at both schools, and the percentages of core users by grade level was highest in the 12th grade at both schools. This is consistent with the earlier finding that use increased with grade level. Students had a greater likelihood of needing the services of the clinic the longer they attended the school.

Grade point average was about the same in all three clinic-use categories at either school. The percentages of students in

TABLE 4.6

Sociodemographic characteristics of survey respondents by frequency of total clinic visits in selected sites[a].

	Dallas			Quincy (Year 2)		
	Non-users (N=72)	Moderate users (N=274)	Core users (N=103)	Non-users (N=207)	Moderate users (N=343)	Core users (N=112)
Percent female	53	57	57	49	47	69
Mean age	16.4	16.3	16.5	16.4	16.4	16.8
Race/ethnicity (in percentages)						
Black	67	76	79	84	95	96
White	1	<1	—	14	5	3
Hispanic	26	23	18	1	<1	0
Other	6	2	<1	1	0	1
Grade level (in percentages)						
9	24	26	20	—	—	—
10	29	28	27	39	37	26
11	31	24	22	38	33	26
12	15	20	29	22	30	46
Mean grade point average	2.6	2.6	2.5	2.2	2.4	2.3
Percent in father present homes	86	42	38	46	37	21
Percent food stamp recipients	26	22	25	11	22	21

a A non-user is a respondent who has never been to the clinic.
A moderate user is a respondent who has been to the clinic a total of one to seven times.
A core user is a respondent who has been to the clinic a total of over eight times.

homes with a father present were quite a bit higher among non-users in Dallas (86%) than among either the moderate (42%) or core users (38%). In Quincy, these percentages were lower for all three groups than in Dallas, and the drop from non-users (46%) to moderate users (37%) to core users (21%) was more gradual.

Receipt of food stamps was similar for all three user groups in Dallas (22% to 26%), but the percentages of students in Quincy receiving food stamps was higher among both moderate (22%) and core (21%) user groups than among the non-user group (11%).

Clinic Services Used

Tables 4.7 and 4.8 provide information on the range of reasons for clinic visits. The information in Table 4.7 was compiled from clinic records and the categories for "reasons for clinic visits" were combined and standardized, to the extent it was feasible, in order to make comparisons between schools meaningful. The information in Table 4.8 was gathered from the Student Health Survey, and provides a comparison between the two data sources.

Due to the noncomparability of categories used at each of the clinics during this evaluation period and due to the differences between individual clinic categories and the items used on the Student Health Survey to measure the services obtained by the students, comparisons between the two tables should be made cautiously, if at all. Rather, it is more useful to think about the information from the two tables in combination with each other to get the clearest picture of the range of services provided and the level of usage. For example, the survey data (Table 4.8) indicate that students in Jackson received infant care at the clinic, while the clinic records from Jackson do not use "infant care" as a separate category (Table 4.7). It probably was reported as a visit in a general health care category.

These tables do illustrate the wide variety of services offered to students at different sites. According to the survey data (Table 4.8):

- Between 10% to 43% of the students used the clinic for the treatment of illness in Gary, Dallas, Quincy, and San Francisco;

TABLE 4.7

Percentages of total number of clinic visits by reason for visit, by site[a]

	Gary	Muskegon	Jackson	Dallas	Quincy	San Francisco
Reason for visit (Total visits)						
Primary Care						
First Aid/emergency/injuries	—	16	—	5	8	—
Treatment of illness	5	54	—	50	—	21
Acute Medical treatment	—	—	21	—	—	21
General health care	—	—	—	—	32	8
Reproductive health care						
Pregnancy test	2	2	3	8	—	2
Pregnancy counseling	15	—	—	—	—	1
Prenatal care	—	—	2	3	3	—
Contraceptive counseling	—	—	—	6	—	2
Contraceptive prescription/dispensation	—	—	—	8	—	—
General family planning	8	25	28	—	24	2
STD testing	4	—	—	1	—	1
General gynecology	1	—	4	12	3	2
Counseling/health education/information	26	2	36	1	12	49
Prevention/screening						
Sports/health physicals	2	—	2	1	6	6
Immunizations	—	—	—	3	—	—
Vision/hearing screening	—	—	—	1	—	—
Blood pressure screening	10	—	—	—	—	—
Diabetes screening	1	—	—	—	—	—
General health assessment	—	2	3	—	2	—
Other						
Weight control/nutrition	9	—	—	1	—	1
Dental	—	—	—	1	—	—
Infant medical care	1	—	—	—	—	—
Referrals and third party consultations	7	—	—	2	—	—
Miscellaneous	9	—	—	1	—	—

a Based on clinic records.

TABLE 4.8

Percentages of students by reason for clinic visit, by site, according to survey[a]

Reason for visit/use	Gary	Muskegon	Jackson	Dallas	Quincy Year 1	Quincy Year 2	San Francisco
	(688)	(480)	(317)	(524)	(710)	(731)	(433)
Primary Care							
First Aid/emergency/injuries	18	—	—	13	19	22	14
Illness	—	—	—	43	24	33	10
Reproductive Health							
Pregnancy test	3	6	9	10	4	6	1
Prenatal care	1	0	3	3	2	2	0
Contraceptive counselling	5	21	28	12	14	15	3
Contraceptive prescription	—	17	20	—	—	—	—
Obtained contraceptives	—	—	22[b]	22[b]	26	25	—
Pelvic exam	3	8	17	13	5	16	—
STD tests	1	1	4	3	2	2	1
Dental information or services	2	4	23	28	3	3	1
Weight/Nutrition	20	6	7	4	4	2	2
Screening							
Vision/Hearing	30	—	—	—	—	—	—
Scoliosis	11	—	—	—	—	—	—
Counselling	8	19	26	22	18	15	14
Referrals	2	14	12	2	5	5	4
Sports/health physicals	18	11	33	33	17	20	15
Immunizations	3	—	15	41	5	4	—
Infant Medical Care	—	—	3	—	—	—	—
Daycare	—	—	3	—	—	—	—
WIC	—	—	2	4	2	—	—
Treatment for alcohol/drug	1	—	4	—	—	—	—

a These frequencies are based upon a list of services offered by each clinic. Respondents were asked to check all those that they had used. Blank cells indicate that the service was not included on the health survey.

b In Dallas the health survey included a specific question about whether or not the student had ever used the clinic to obtain contraceptives. In that site, the data from this question was perceived to be more reliable than the contraceptive item on the services list and thus, was included in this table. The estimmate based upon the list of services provided a lower estimate of the percentage of students that had used the clinic for contraceptives (14%).

- Between 13% and 22% of the student sample went to the clinic for first aid or emergency care in Dallas, Quincy, and San Francisco;
- Sports and health examinations were obtained by 11% of the students (at Muskegon) to 33% (at Jackson and Dallas) of the students; and
- Counseling was sought by 8% (at Gary) to 26% (at Jackson) of the students.

Additionally, these results indicate that clinics often took a proactive role in the health of their students by providing preventive care in the form of general health assessments (Quincy, Muskegon, and Jackson) and screenings for specific problems, such as high blood pressure (Gary), and by providing information and education programs. Several offered assistance with nutrition and weight control (Gary, Dallas, and San Francisco).

While all clinics made referrals for dental care, Jackson and Dallas had dental programs. In Jackson, a physician checked students' teeth and made appropriate referrals for free dental care; in Dallas, services were provided free of charge in a dental suite located at the clinic itself. Twenty-three and 28% of the students at these respective sites indicated use of dental services (Table 4.8). Clinics varied in the extent to which they addressed reproductive health. In those clinics that issued vouchers for or dispensed contraceptives, about a quarter of the visits were for "family planning" reasons (Table 4.7). In Gary about 8% of the visits were for family planning, and in San Francisco, 2% were specified for family planning and 2% were for contraceptive counseling.

From 17% to 26% of the students in schools where contraceptives were prescribed or dispensed reported obtaining contraceptives through the clinic (Table 4.8). While staff in all school clinics were available for contraceptive counseling, these survey data indicate that students from schools offering vouchers or dispensing contraceptives were more likely to use the clinic for that reason: from 14% to 28% of the students in these schools had received contraceptive counseling, while only 3% of the students in San Francisco and 5% of the students in Gary reported using the clinic for this reason. Similarly, students in prescribing/dispensing schools were more likely to have gone to the clinic for a pregnancy test.

Both sources of data confirm that family planning was not the primary reason most students attended the clinic. Only about a quarter of the students in any of the schools had used the clinic to obtain contraceptives. In none of the schools prescribing/dispensing contraceptives did family planning visits comprise more than 28% of the visits, and in most of these schools, the percentages were closer to one fourth.

Table 4.9 presents the percentages of females and males who used the clinic for contraceptive information or counseling or to obtain contraceptives. In Muskegon, where students were given vouchers to obtain contraceptives at a family planning clinic located off-campus, only 28% of the females and 13% of the males went to the clinic for contraceptive counseling, compared with 71% of the females and 63% of the males in Dallas, where contraceptives were available at the clinic. The percentages of sexually active female students using the clinics to obtain contraceptives (or vouchers for contraceptives) ranged from 23% in Muskegon to 32% in Quincy, 39% in Jackson, and 40% in Dallas. These percentages demonstrate considerable clinic success in meeting this need, even though there is still room for improvement. They also demonstrate that the three clinics that dispensed contraceptives served higher percentages of sexually active females than the clinic that provided vouchers.

Only 12% to 18% of sexually active males in the survey visited each clinic in order to obtain condoms. These lower percentages probably reflect the fact that condoms are an over-the-counter method of birth control that does not require a doctor's prescription — making them more easily accessible for males than are oral contraceptives for females — and the fact that less attention is given to males concerning the issue of contraception.

Both sources of information also confirm the fact that none of the six clinics could be considered primarily a family planning clinic. Even in schools where contraceptive

TABLE 4.9

Number and percentages of students receiving contraceptive information or products from clinic, by gender and site

	Muskegon	Jackson	Dallas	Quincy
Females				
Number of students using clinic for contraceptive information, counseling or gynecological examinations[a]	119	NA[b]	478	NA
Percentages of all students using clinic for contraceptive information, counseling or gynecological examinationsa gynecological examinations[a]	28	NA	71	NA
Number of students receiving or being referred for birth control pill from the clinic[a]	67	111	182	154
Percentages of all sexually active students who received or were referred for birth control pills from the clinic[c]	23	39	40	32
Males				
Number of students using the clinic for contraceptive information or counseling[a]	49	NA	443	NA
Percentages of all students using clinic for contraceptive information or counseling[a]	13	NA	63	NA
Number of students receiving or being referred for condoms from the clinic[a]	41	49	93	93
Percentages of all sexually active students who received or were referred for condoms from the clinic[c]	12	15	17	18

a Based on Student Health Survey data.
b Not available.
c Based on clinic record data.

products were available at the clinics, roughly three-fourths of all the visits to the clinic were for health needs other than those related to contraceptive use.

These results demonstrate that there is no single clinic model; different clinics had different approaches and different mixes of services to offer to clients. In Muskegon, for example, over half the visits were for minor acute illness, and relatively few were for counseling, whereas in Jackson, support counseling, including counseling for alcohol and drug abuse, was the most common reason for visiting the clinic.

Both clinic records and staff interviews demonstrated the importance of the clinic in discovering serious and previously undetected problems such as diabetes, heart problems and internal infections. In addition, clinics have been able to provide immediate care in emergency situations such as a severe asthma attack, and they have been instrumental in identifying cases of sexual abuse. Though these types of cases were rare, they illustrate the potential importance of the clinics in the lives of some students.

Services used by core users

A second analysis of core users in Dallas and Quincy was designed to determine the relative percentages of moderate and core users who received specified services from the clinics (Table 4.10). Separate results are reported for males and females, since certain services are related specifically to gender.

Little difference was found between the percentages of female moderate and core users who received first aid at each site. Males in both schools, however, were more likely to receive first aid if they were core users than if they were moderate users. Larger percentages of both males and females who were core users used the clinics for treatment of sickness and counseling at both schools.

Reproductive health services, such as the dispensation of contraceptives, often entail multiple visits including visits for pelvic examinations and information; in some cases, contraceptive visits also may be triggered by pregnancy testing. It is not surprising, there-

fore, that larger percentages of core users than moderate users used the clinic for all reproductive health reasons. In fact, their core use itself may be related directly to use for reproductive health care, though this cannot be determined directly from the survey information.

Use for nutrition education at both schools was low for both use groups, as was use for dental services and immunizations in Quincy and referrals in Dallas. Services such as sports exams usually require only one visit, and therefore, no differences would be expected in the percentages of moderate and core users who received sports exams. This generally was the case, except for males in Quincy: a much higher percentage of male core users than moderate users had used the clinic for a sports physical.

In Dallas, where a dentist was on staff, a greater percentage of core users than moderate users used the dental services, reflecting the fact that dental care also may require multiple visits. Similarly, more core users received immunizations at this clinic than did moderate users.

TABLE 4.10

Percentages of moderate and core users[a] who ever visited clinic for each service, by site and gender[b]

	Dallas				Quincy (Year 2)			
	Male		Female		Male		Female	
	Moderate User	Core User	Moderate User	Core User	Moderate User	Core User	Moderate User	Core User
Services	(N=117)	(N=43)	(N=157)	(N=58)	(N=182)	(N=35)	(N=161)	(N=77)
First aid	18	47	8	9	35	60	25	22
Sickness	40	72	51	69	40	69	40	60
Counseling	12	53	24	45	9	51	19	39
Reproductive health								
Pelvic exams	—	—	24	64	—	—	13	45
Birth control information	2	7	13	43	7	20	20	52
Obtain contraceptives	3	14	12	45	21	51	21	73
Pregnancy testing	—	—	15	29	—	—	7	24
Prenatal care	—	—	3	12	—	—	2	4
STD testing	1	12	1	9	2	11	2	8
Nutrition education	3	5	6	7	2	9	2	6
Sports exams	51	56	32	40	9	54	16	22
Dental services	28	44	27	48	4	6	4	5
Immunizations	43	60	52	71	4	3	4	8
Referrals	2	2	1	0	6	14	2	18

a Moderate users are those who visited the clinics a total of one to seven times. Core users are those who visited the clinics a total of eight or more times.

b Based on Student Health Survey data.

Attitudes Toward and Perceptions of School-Based Clinics

The Student Health Survey included questions concerning reasons for use and nonuse of the clinic, and for those who used the clinic, questions regarding their levels of satisfaction and perceptions of the confidentiality of interactions with clinic staff.

Among clinic users, the five most often cited reasons for clinic use were (Table 4.11):

- It is part of the school and I can trust it (46% to 59%).
- It is easy to get to (41% to 64%).
- The staff cares (43% to 62%).
- It is the cheapest clinic (15% to 36%).
- Services are confidential (10% to 23%).

The consistency with which students from all sites identified these as the most important reasons is an indication of the important characteristics of the more general school-based clinic model, namely, being located physically close to the students' primary activities and having staff who are specially trained to work with adolescents.

TABLE 4.11

Percentages of clinic users by reasons for clinic use, by site[a]

	Gary	Muskegon	Jackson	Dallas	Quincy Year 1	Quincy Year 2	San Francisco
	(398)	(389)	(209)	(411)	(458)	(524)	(201)
Reasons for clinic use:[b]							
Part of school - can trust it	59	46	66	51	60	56	51
Easy to get to	56	41	64	62	48	53	64
Staff cares	62	54	62	43	54	56	45
Cheapest clinic	36	23	32	15	23	26	18
Services are confidential	21	25	23	10	12	13	18
Has best hours	13	8	18	6	11	8	15
Only known clinic	8	5	6	11	2	3	8
Other reasons	12	19	8	7	18	18	9
Friends go there	11	10	20	12	10	9	14

a Based on Student Health Survey data.
b More than one reason per respondent may be indicated.

Only 2 to 11% of the students said they used the clinic because it was the only clinic known to them. This suggests that students do have other identifiable sources of medical care.

An additional analysis to determine the relationship between reasons for use and the number of times the clinic was used provides evidence for the validity of the students' responses (See Technical Note 1). Those students who gave at least one of the first three reasons listed above visited the clinic more times and used more services than those who did not (Appendices E and F).

Ninety-five percent of the clinic users in the two sites where the question was asked indicated that they were either "somewhat satisfied" or "very satisfied" with clinic services (Table 4.12). Only 5% were somewhat or very dissatisfied.

The percentages of those believing their visits were confidential ranged from 55% in Dallas to 86% in Jackson (Table 4.13). Because the perception of confidentiality may be crucial for some students in deciding whether or not to use the clinic, especially for more

TABLE 4.12

Percentages of clinic users in Quincy and San Francisco by satisfaction with clinic[a]

Satisfaction	Quincy (Year 1)	Quincy (Year 2)	SanFrancisco (Year 2)
	(458)	(524)	(201)
Very satisfied	71	65	59
Somewhat satisfied	22	33	36
Somewhat dissatisfied	3	3	3
Very dissatisfied	4	2	2

[a] Based on Student Health Survey data.

TABLE 4.13

Percentages of clinic users who believe in confidentiality of clinic services by site[a]

Gary	Muskegon	Jackson	Dallas	San Francisco
(398)	(389)	(209)	(411)	(201)
69	76	86	55	74

[a] Based on Student Health Survey data.

private reasons, such as contraception and treatment of STDs, the fact that 14% to 45% of the students in the schools believed that their visits were not confidential may warrant some concern by staff members.

Students who had never used the clinic were asked to indicate all the reasons why. The primary reason for non-use (Table 4.14) was a lack of need: between 43% of nonusers in Jackson and 87% in San Francisco cited this as a reason. The other two most commonly cited reasons — "no need to use the clinic for birth control" and "a desire to continue with a clinic they already were using" — did not reflect negative feelings about the clinic either.

Several reasons cited indicated that some students perceived certain barriers to clinic use. For instance, 8% to 21% of the students said they did not feel comfortable at the clinic. Smaller percentages were worried about confidentiality: they were afraid their friends (2% to 12%), teachers (2% to 8%), or parents (3% to 7%) would find out they had been to the clinic. Some did not visit the clinic because they did not want to miss class. Apathy was cited by 6% to 27%, who said they "just didn't get around to it." Only 1% or 2% of the non-users indicated that they did not like the staff.

Results from this study indicate that both physical access and trust in the staff were important reasons for using the clinic. While most nonuse seems to be related to a lack of need, there were some students who were concerned about confidentiality.

Conclusions

The primary purpose of school-based clinics is to provide young people with comprehensive health care. Both the clinic records and survey data demonstrate that these programs were successful in that effort. Five of the six clinics served very large percentages of the students, and the sixth clinic served increasingly larger percentages of students each subsequent year of operation. Impressively, one of the two clinics that opened during this evaluation saw almost two-thirds of the students during its first year of operation. Moreover, large percentages of students used the clinics during their first year in the clinic school — often for physical examinations — and the likelihood of using the clinic increased after the first year.

Although large percentages of students used the clinic at least once during the year, most students used it rather infrequently — typically one to three times a year. Most students did not need to use the clinic more often, but there was a small core group of students who ever had visited the clinic eight or more times. These were students, with whom staff members may have developed close relationships and upon whom the clinics may have had a broader and a more significant impact.

The clinics served the varied groups within their schools. Regardless of whether groups were based on gender, race, age, or other background characteristics, substantial percentages used the clinics. Because these clinics are located in low-income areas, they served substantial numbers of students with evidence or symptoms of poverty (e.g., one- or no-parent homes, receipt of food stamps, and/or free school lunches).

Table 4.14

Percentages of nonusers by reason for not using clinic, by site[a]

Reasons[b]	Gary (262)	Muskegon (88)	Jackson (94)	Dallas (84)	Quincy (Yr 1) (243)	Quincy Yr 2) (206)	San Francisco (138)
I was healthy and did not need the clinic.	55	72	43	45	51	53	87
I did not need the clinic for birth control.	32	40	23	10	14	22	33
I wanted to go on with a clinic I'd been using before.	8	11	27	12	8	10	9
I didn't know about the school health clinic.	3	3	9	1	3	1	7
I didn't know where the clinic was.	3	1	3	0	1	0	7
I didn't like the staff at the clinic.	2	1	1	2	1	4	1
I was not comfortable there.	14	11	21	8	11	11	8
I was afraid teachers would find out.	8	0	3	0	2	4	6
I was afraid my friends would find out.	12	3	5	2	8	8	11
I was afraid my parents would find out.	7	0	3	4	5	5	4
My friends told me the clinic was not any good.	2	1	9	5	2	1	1
I thought the clinic cost too much money.	1	1	0	4	2	2	1
The clinic is too close to school.	5	1	5	1	6	4	4
The clinic is too far from where I live.	1	0	3	1	2	0	1
The clinic did not have the kind of health care I wanted.	5	6	2	2	4	4	4
I just didn't get around to it.	12	19	26	6	21	27	21
I didn't want to miss class.	6	6	6	10	5	10	16
Other	10	7	9	4	19	23	4

a Based on a Student Health Survey data.

b More than one reason per respondent may be indicated.

Most of the students used the clinics for treatment for illness, first aid, physical exams, and counseling. If clinics prescribed or dispensed contraceptives (or vouchers for contraceptives), students were likely to use them for this reason — in two sites, up to 40% of the sexually active females did so. Furthermore, where clinics provided a means of obtaining contraceptives, 14% to 28% of their visits were for contraceptive counseling and dispensation. When they did not provide vouchers or dispense contraceptives, students were substantially less likely to seek contraceptive information or counseling either. None of these clinics was primarily a family planning clinic, however; 76% to 84% of the visits were for other reasons.

Core users in Dallas and Quincy were more likely to use the clinic for treatment of illness and counseling than moderate users, and larger percentages of core users also used the clinic for reproductive health care, which often requires multiple visits.

Clinic records and interviews with clinic staff revealed numerous examples of important, perhaps critical, health care that were provided. Sometimes, previously undetected chronic health problems were discovered; at times medical emergencies were handled in the clinic, and at other times severe psychosocial problems were addressed.

When students were asked why they used the clinic, the most commonly cited reasons reflected the special characteristics of school-based clinics: it was part of their school and they could trust it; it was easy to get to; and the staff really cared. Moreover, students citing one of these three reasons used the clinic more frequently and for a greater variety of reasons than students not citing any of these.

By far the most important reasons that students gave for not using the clinics indicated a lack of need. In none of the sites did a substantial number of students indicate that concerns about the clinic caused them not to use it.

In the two sites where the appropriate data were collected, students indicated a high level of satisfaction with the clinics, and many students indicated they would continue to use the clinic in the future.

Technical Notes

1. The survey data enabled us to independently validate whether or not the reasons given by the clinic users actually were related to their clinic use. No direction of causality can be inferred from these data, however. It is equally plausible both that students use the clinic because they trust it and that because they use it more often, their personal experience promotes their sense of trust. No doubt a feedback loop exists.

   Appendix G presents the mean number of times the clinic was used by clinic users who indicated various reasons for use, while Appendix H presents the mean number of services used. The data demonstrate that a relationship does exist between reasons for use and actual use. Students who responded that they used the clinic because the clinic was part of their school and they trusted it received more services in five of the six sites ($p < 0.05$). Across the six sites, these students received an average of 2.7 services, compared with 2.1 services received by those not indicating this as a reason for use.

   In all six sites, students who thought the clinic was easy to get to used more services, while in two sites they also used the clinic more times ($p < 0.05$). The belief that the staff cared promoted use of more services in all six sites, while in five sites this belief was related to greater frequency of clinic use.

CHAPTER 5

Impact of School Based Clinics on Utilization of Medical Care

An important motivation for opening a school based clinic is to provide greater access to health care for high school students. However, in all of the clinic sites included in this evaluation, alternative sources of health care were available. For example, in Muskegon there were private doctors, private "Quick Care" centers, two hospitals with emergency rooms, and a Planned Parenthood clinic all within a three-mile radius of the school; in Jackson, private doctors, hospitals, and the health department were all within a short drive; and in Quincy, the health department had operated a few blocks from the school before the school clinic was opened. Results reported in the previous chapter indicate that students were aware of these alternative sources.

However, physical availability is not the only aspect of school-based clinics that is designed to overcome the obstacles in the path of students who need medical care. They provide care inexpensively; have staff trained to work with adolescents; provide programs developed especially for adolescents; are more likely to address psychosocial issues related to health and risk-taking behaviors; try to see patients quickly; and generally have a holistic approach to health care.

TABLE 5.1

Length of time since students had last visited a doctor by clinic and comparison schools in percentages[a,b]

	Gary		Muskegon		Jackson		Dallas		Quincy			San Francisco	
	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Year 2	Year 1	Pre-clinic	Year 2	Pre-clinic
Time	(662)	(632)	(475)	(1136)	(309)	(515)	(390)	(874)	(669)	(634)	(529)	(434)	(875)
12 mos	72	65	76	74	73	66	72	61	63	66	64	66	64
1-2 yrs	18	22	16	17	15	20	16	22	20	17	19	23	25
3-4 yrs	5	6	4	5	6	5	5	6	5	7	5	6	6
+4 yrs	5	7	4	4	7	8	8	11	12	10	12	5	5
p value[c]	.06		.72		.11		.002		.92[d]	.48[d]		.73	

a To statistically control for differences in racial composition in the clinic and non-clinic samples, the results for all the sites except San Francisco are based upon blacks only. In San Francisco, the post data are weighted so that the racial distribution of the weighted sample approximately equals the racial distribution of the preclinic sample.

b Based on Student Health Survey data.

TABLE 5.2

Length of time since last physical examination and selected lab tests at Dallas site, in percentages [a]

	Time			
	0-2 yrs	3-4 yrs	4 yrs	p value[b]
Last Physical Exam				
Clinic (394)	86	5	10	.000
Non-Clinic (867)	78	7	16	
Last Urine Test				
Clinic (391)	86	5	9	.000
Non-Clinic (862)	70	8	22	
Last Blood Test				
Clinic (394)	84	6	10	.000
Non-Clinic (867)	78	8	14	

a Based on Student Health Survey data; see footnote "a" in Table 5.1 for additional analysis information.

b Based on chi square tests of significance.

TABLE 5.3

Percentages of students receiving physical exams and blood and urine tests in Quincy before and after the clinic opening[a,b]

		Percentage	p value[c]
Physical exam during last year	Year 2 (670)	72	.09
	Year 1 (642)	68	.81
	Pre-clinic (537)	67	
Urine test during last year	Year 2 (669)	66	.01
	Year 1 (639)	66	.006
	Pre-clinic (603)	58	
Blood test during last year	Year 2 (670)	65	.19
	Year 1 (640)	68	.27
	Pre-clinic (540)	69	

a Based on Student Health Survey data; see footnote "a" in Table 5.1 for additional analysis information.

b Both Year 1 and Year 2 were compared with pre-clinic data.

c Based on chi square tests of significance.

In order to determine whether the presence of a school-based clinic affected students' overall utilization of medical care, comparisons were made, based on survey data, between each of the six clinic school samples and their non-clinic or pre-clinic counterparts on outcome variables such as the length of time since students had seen a doctor or a dentist, had a physical examination, or routine laboratory tests and whether or not they had needed to visit an emergency room or been hospitalized during the past year. Students at two schools also were asked about their reasons for not receiving medical care. The question: "Are clinics actually increasing the health care received by students, or are students simply using the school clinic to replace other providers used in the past?" is considered in light of these results.

Doctor Visits

The Student Health Survey asked the students when they had last seen a doctor. Table 5.1 indicates that roughly two-thirds to three-quarters of students in the clinic and comparison schools at each site had seen a physician within the previous 12 months, and that between 79% and 93% had done so within the last two years.

When clinic schools were compared to non-clinic schools, Dallas was the only site where there was a significant difference: significantly more students in the clinic sample (72%) than in the comparison sample (61%) had seen a doctor within the past 12 months.

Background characteristics were statistically controlled by means of regression analyses (not shown). Controlling for these characteristics, the difference between the clinic and non-clinic schools in Dallas again was statistically significant ($p < 0.01$), and the difference between the clinic and non-clinic schools in Gary became nearly statistically significant ($p < 0.06$). No significant differences were found in other sites, however.

This should not be surprising, since all the clinics relied heavily upon nurse-practitioners; Dallas was the only clinic with a full-time physician on staff. Apparently, the presence of a physician a few hours a week or referrals to a physician do not significantly increase the likelihood students will see a doctor, though the presence of a full-time physician may.

Physical Examinations and Laboratory Tests

The length of time since the last physical examination and since the last urine and blood tests (used for screening diabetes and anemia, respectively) were compared between clinic and non- or pre-clinic schools in Dallas (Table 5.2) and Quincy (Table 5.3). In Dallas, where a procedure was in place to examine all incoming students, a larger percentage of students in the clinic school than in the comparison school had received a physical exam (86% compared with 78%), a blood test (84% compared with 78%) and a urine test (86% compared with 70%). These differences were statistically significant at the .01 probability level. Similar results were obtained from regression analyses (not shown). These results suggest that this program provided health maintenance exams to those who might not otherwise get them.

In Quincy, where health examinations were provided but not given as much emphasis as in Dallas (nor were there as many staff personnel available), there was not a significant increase in the percentages of students receiving either a physical exam or blood test during the last year, but there was a significant difference in the number of students having had a urine test during the 12 months prior to the survey before and after the clinic began operation ($p< 0.01$). Fifty-eight percent had a urine test before the clinic opened, compared with 66% each year after it began operation.

Visits to the Dentist

In four sites, there was not a significant difference between the clinic and comparison schools in the length of time since students had seen a dentist, but in two sites, Muskegon and Dallas, there was a significant difference (Table 5.4). The clinic in Dallas provided dental services, but the Muskegon clinic made referrals only. While the difference between the percentages who had seen a dentist within the past year were not very great in Dallas, there were larger differences between the percentages of students who had ever seen a dentist and

TABLE 5.4

Length of time since students had last visited a dentist by clinic and comparison schools, in percentages[a,b]

Time	Gary		Muskegon		Jackson		Dallas[c]		Quincy[c]			San Francisco	
	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Year2	Year1	Pre-clinic	Year2	Pre-clinic
	(661)	(628)	(475)	(1136)	(310)	(515)	(389)	(851)	(663)	(631)	(528)	(435)	(880)
12 mos	38	37	60	54	44	48	42	40	42	40	41	55	58
1-2 yrs	24	23	18	24	24	21	31	24	23	26	27	23	22
3-4 yrs	25	23	17	10	22	19	8	10	14	12	10	16	14
Never	13	17	5	12	10	19	19	26	21	22	22	6	6
p value[c]	.25		.000		.34		.005		.16[d]	.77[d]		.52	

a Based on Student Health Survey data; see footnote "a" in Table 5.1 for additional analysis information.

b The Dallas clinic was the only clinic providing dental services on site.

c Based on chi square tests of significance.

d Year 1 and Year 2 were compared with pre-clinic data.

those who had not; 42% of the clinic sample compared with 40% of the non-clinic sample had seen a dentist within the past year, but only 19% of the clinic sample said they had never seen a dentist, compared with 26% of the non-clinic sample.

In Muskegon, the differences between the clinic and non-clinic samples seemed to be fairly constant across time intervals since the last visit. Sixty percent and 54% of the respective clinic and non-clinic samples had seen a dentist within the past year, and 5% and 12%, respectively, had never seen a dentist.

Emergency Room Visits and Nights Hospitalized

The mean numbers of emergency room visits and numbers of nights spent in the hospital were calculated for clinic and non-clinic schools at each site. These statistics are shown in Table 5.5. There were no statistically significant differences found between the clinic/non-clinic comparisons for either outcome variable. In Dallas, with its larger staff and full-time physician, students in the clinic school used the emergency room 7% less often than students in non-clinic school, but this was not a significant difference.

There have been mixed expectations concerning the role of school-based clinics in affecting these outcomes. Some argue that clinics would reduce the need for emergency room care and hospitalization, but others have argued that students use these services primarily for serious health problems, such as injuries or acute illness that could not be prevented or treated within the context of the school-based clinic. The results from this analysis provide support for this latter view.

TABLE 5.5

Mean number of emergency room admissions and nights spent in the hospital during 12 months prior to survey administration[a]

	Gary		Muskegon		Jackson		Dallas		Quincy[c]			San Francisco	
	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Year2	Year1	Pre-clinic	Year2	Pre-clinic
Emergency room admissions													
Mean	.47	.44	.60	.70	.46	.38	.39	.46	.53	.54	.57	.35	.41
N	645	626	461	1129	296	503	490	844	646	610	518	408	823
p value[b]	.62		.19		.24		.20		.57[c]	.67[c]		.21	
Nights spent in hospital													
Mean	.54	.68	.60	.44	.46	.41	.48	.59	.41	.46	.32	NA	
N	643	623	456	1112	292	491	493	837	651	610	515	NA	
p value[b]	.35		.45		.67		.43		.39[c]	.19[c]			

a Based on Student Health Survey data; see footnote "a" in Table 5.1 for additional analysis information.

b Based on t-tests of significance.

c Both Year 2 and Year 1 were compared with pre-clinic data.

Clinics might be able to reduce the use of emergency rooms for specific health problems that could be treated in the clinics. Information from interviews with staff in Dallas, for example, indicated that their program helped students with asthma and had reduced the frequency with which these students were likely to go to the emergency room for this particular problem.

Obtaining Needed Medical Care

In order to assess whether school-based clinics provided health care for students who would not otherwise get it, students from two sites were asked either: "Did you always receive health care when you were sick or hurt or had a medical problem during the past 12 months, and if not, why not?" (Dallas) or "Did you ever need medical care during the previous 12 months and not get it?" (Quincy).

The results (Tables 5.6 and 5.7) indicate that there were no differences between the clinic and non-clinic school at either of these sites in the degree to which the respondents felt their medical needs were unmet at least one time during the year prior to the survey. Forty percent in the clinic school in Dallas and 44% in the non-clinic school responded that they did not always get medical treatment, while 8% of the students in Quincy said they needed care but didn't get it after the clinic opened, compared with 11% of the students surveyed before the clinic opened.

The differences in percentages between Dallas and Quincy can be explained by the results in Table 5.8. Students who indicated that they did not receive the medical services were asked why. In Dallas, the question included as possible answers items indicating no care was needed. When these items are eliminated, the percentages of Dallas students needing care but not getting it were similar to those in Quincy.

The percentages in Table 5.8 were based on those students indicating they had not received care during the past year. Percentages citing any one reason were fairly similar for clinic and non-clinic students. The post-clinic students at Quincy were more likely than the pre-clinic students to cite "cost too much" and "had to wait for an appointment" as reasons for not getting care.

TABLE 5.6

Percentages of students in Dallas clinic and comparison school who were sick or hurt or had health problems during the previous 12 months, but did not always get medical attention[a]

Clinic	Non-clinic
(397)	(857)
40	44
p = .20[b]	

a Based on Student Health Survey data; see footnote "a" in Table 5.1 for additonal analysis information.

b Based on chi-square test of significance.

TABLE 5.7

Percentages of students in Quincy before and after clinic opening who needed medical care during the previous 12 months, but did not get it[a,b]

Year 2	Year 1	Pre-clinic
(664)	(635)	(538)
8	11	9
p=.67[c]	p=.47[c]	

a Based on Student Health Survey data; see footnote "a" in Table 5.1 for additional analysis information.

b Both Year 1 and Year 2 were compared with pre-clinic data.

c Based on chi-square tests of significance.

TABLE 5.8

Percentages of students indicating medical attention not received by reason for not getting medical attention, by site[a]

	Dallas		Quincy	
Reason	Clinic (151)	Non-clinic (389)	Year 1 (54)	Pre-clinic (70)
Did not need medical care	72	64	NA	NA
Parents did not think needed	18	23	NA	NA
Medical care not available	3	5	20	14
Cost too much	11	9	48	33
Did not know where to go	1	7	6	10
Did not have way to get there	4	5	20	14
Inconvenient hours	7	5	15	10
Had to wait for an appointment	11	7	22	4
Did not like staff	1	2	4	0
Visit would not be confidential	2	5	15	11
No teen clinic	1	2	11	9
Did not get around to it	17	11	44	37
Afraid to go	11	9	NA	NA

a Based on Student Health Survey data; see footnote "a" in Table 5.1 for additional analysis information.

Conclusions

Results presented in this chapter indicate that other sources of medical care were available to students and were used, even when a clinic was present in the school. These results also indicate that the impact of a school clinic on any one outcome variable was related to the staff and programs available in that clinic. While there was considerable substitution of providers evident, there also was a pattern of greater impact when greater resources were available: more students saw doctors and dentists in schools where doctors and dentists were available, and more students received health maintenance exams when these exams were a routine part of the clinic program.

The answer to the question of whether school-based clinics increase the amount of medical care to students was not completely answered by the results presented here. Part of the reason for this lies in the questions that were asked. Knowing how recently a student had last seen a doctor does not give one a clear picture of how recently the student had been seen by a health care provider. Data gathered for this evaluation, however, indicate that in most clinics the primary health care provider was not a doctor, but a nurse or nurse practitioner, so that fewer doctor visits cannot be equated with less care. Questions concerning visits to nurses were not asked in the survey, however, since it was expected that students would identify all medical personnel as doctors. It is not clear that this happened, and in the future questions about the frequency of being seen by specific personnel and for health care in general should be asked to determine the amount of health care received.

The clinics did not have a measurable impact upon the use of emergency rooms or the number of nights spent in the hospital, probably because students who have major injuries or illness need to use these facilities regardless of whether or not they have access to a school-based clinic. It would be interesting to have more specific information with regard to the reasons students use hospital facilities, and to determine if school-based clinics reduce the treatment of specific problems, such as asthma, in the emergency room.

Most students who did not receive health care during the year prior to the survey were not in need of such services. Availability and cost were not barriers to getting needed services for the majority of students at either clinic or comparison schools. Reasons for not getting needed services were reported with similar frequency for both clinic-school and non-clinic-school samples where this information was obtained.

Also of interest in future research would be a closer examination of the students' perceptions of the role of the school-based clinic in the context of other available providers. When do they go to the school-based clinic, and when do they choose other providers? How do they make this decision? Answers to these questions may provide some insight to clinic staff about how they may better work in cooperation with other community health providers.

CHAPTER 6

The Impact of School-Based Clinics on Pregnancy Prevention and Risk-Taking Behaviors

In an attempt to understand the potential of school-based clinics to reduce risk-taking behaviors, such as cigarette smoking, alcohol abuse, the use of illegal drugs, and unprotected intercourse, survey data, clinic and hospital records were analyzed.

How much impact on risk-taking behaviors is it reasonable to expect school-based clinics to have? Research has demonstrated that it is difficult to change behavior, especially adolescent behavior. For example, reviews of nutrition, sex education, and drug prevention programs all conclude that most intervention programs do not have a consistent, measurable impact upon behavior. They increase knowledge and may, therefore, facilitate more informed decisions; they help clarify values and may, therefore, help adolescents behave more consistently with their own values. As single interventions, they do not, however, appear in the short term to consistently increase healthy behaviors or reduce risk-taking behaviors.

High school students live in a world where their risk-taking behavior is influenced by their perception of opportunities for productive careers; by the portrayals of sexuality on television; by popular music and magazine advertisements; by the role models they have for childbearing behavior; and by the sexual values conveyed by parents and peers. Teenagers' sexual behavior also is affected by their own physical development, their feelings of self-efficacy, their attractiveness, and their skills in communicating their needs and desires (33).

School-based clinics that attempt to address these difficult-to-change behaviors do so in the midst of trying to provide youth with a wide range of services. It thus seems unreasonable to expect school-based clinics, by themselves, to cause substantial decreases in such behaviors as skipping school, cigarette smoking, substance abuse, and unprotected sexual intercourse. Yet, these clinics initially were expected to achieve these goals.

This report examines the impact of school-based clinics by assessing the incremental impact of providing services to students in the school context, in addition to whatever other community resources already existed. Students in both clinic and comparison schools had access to drugstores, health departments, family planning clinics, private physicians, and hospitals, and it may be that this similar access reduced the impact of school-based clinics on some of the outcomes measured here. For other outcomes, the expectation that school-based clinics could have an impact probably is unrealistic. The results of this evaluation indicate that the potential for impact on some outcomes may exist, however, when the clinic's intervention is part of a multiple-program strategy.

TABLE 6.1

Mean number of days of school that students missed because of illness during previous four weeks, by site [a,b]

	Gary		Muskegon		Jackson		Dallas		Quincy			San Francisco	
	Clinic	Non clinic	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Year2	Year1	Pre-clinic	Clinic	Non-clinic
Mean	1.5	1.5	1.8	1.7	2.1	1.7	1.8	1.3	.7	1.0	1.2	1.8	2.5
N	648	632	460	1123	302	511	498	870	669	631	531	429	835
p value[c]	.80		.60		.07		.000		.000	.27		.001	

a To statistically control for race, the results for all the sites except San Francisco are based on blacks only. In San Francisco, the Year 2 data are weighted so that the racial distribution of the weighted sample approximately equals the racial distribution of the preclinic sample.

b Based on Student Health Survey data.

c Based on t-tests of significance.

TABLE 6.2

Unstandardized regression coefficients for "clinic presence" variable, after controlling for background characteristics[a] in regression model predicting "number of days missed due to illness"[b]

Gary	Muskegon	Jackson	Dallas	Quincy		San Francisco
				Year 1	Year 2	
(1228)	(1207)	(773)	(1189)	(1131)	(1170)	(1161)
-.07	.02	-.02	.48	-.10	-.35	-.52
p=.65[c]	p=.89	p=.91	p=.001	p=.41	p=.001	p=.009

a The following background variables were statistically controlled in the regression equations: gender, age, grade point average, plans for school future, receipt of food stamps, receipt of free lunch, and number of parents in the household.

b Based on Student Health Survey data; see footnote "a" in Table 6.1 for further explanation of analyses.

c Based "change in F" tests of significance.

Absenteeism

Students were asked on the Student Health Survey how many days of school they had missed in the previous four weeks. No significant differences were found between the clinic and non-clinic schools in Gary, Muskegon, and Jackson in the number of days of absence due to illness (Table 6.1). In Dallas, students in the clinic school missed more days than their non-clinic counterparts, while in Quincy (Year 2) and San Francisco, fewer days were missed due to illness two years after the opening of the clinic. Controlling for background factors through regression analysis, the results remained the same (Table 6.2).

In all three of these cases, differences, though significant, were small, amounting to about half a day over a four-week period, conceivably caused by such factors as the spread of an upper respiratory infection in one school but not in the other.

An independent analysis of school attendance records in Quincy provided a measure of validity for the survey results. These records also showed a decline in rates of absenteeism due to illness the year after the clinic opened, though there was no decline in overall absenteeism. Clinic staff suggested that after the clinic opened, well students were less likely to use sickness as an excuse for missing class, taking unexcused absences instead.

An early expectation for school-based clinics was that the medical services provided might prevent students from letting a mild illness turn into something more serious, or might promote quicker recovery, allowing students to return to school sooner. Reducing absenteeism, however, seems unrealistic, given the fact that clinics cannot prevent many of the illnesses such as colds and the flu that keep students at home. Additionally, clinic staff may facilitate absences due to illness, by correctly diagnosing illnesses that should be treated by bed rest.

Data gathered from the surveys in all the sites concerning the number of days students skipped school (i.e., with no valid excuse) demonstrated no differences between the clinic and non-clinic schools.

Cigarette Smoking

The Student Health Survey administered at four sites — Gary, Jackson, Dallas and Quincy — included questions concerning frequency of cigarette smoking and alcohol consumption. (These questions were included in the questionnaire after the study began and were not asked in schools where the survey was first administered.) Chi square tests demonstrate no significant differences between the clinic and non-clinic schools with regard to the frequency of smoking (Table 6.3). Controlling for background variables, however, regression analyses demonstrated a significantly lower frequency of cigarette smoking in the clinic-school sample in Jackson compared with the non-clinic sample. (Table 6.4).

Alcohol Consumption

The frequency of alcohol consumption was significantly lower at the clinic schools at three of the four sites (Gary, Jackson and Dallas), according to chi square tests of significance (Table 6.3). The primary differences occurred in the "never or rarely" categories; for example, in Gary, 61% in the clinic school versus 48% in the comparison school reported never or rarely drinking, and in Dallas, 71% in the clinic school compared with 59% in the comparison school reported never or rarely drinking. The regression analyses, controlling for background characteristics, also provided the same statistically significant results (Table 6.4).

Illegal Drug Use

Questions concerning frequency of illegal drug use were asked in two sites — Dallas and Quincy. No differences between clinic and non-clinic samples were found using either chi-square tests (Table 6.3) or regression analyses controlling for background variables (Table 6.4). Though there is some concern about the validity of self-reports of illegal behavior, there is no reason to believe this would have affected survey responses at the clinic and non-clinic schools differentially.

The interventions provided by the clinics to address these three behaviors were varied, though in most clinics, drug use was given special attention. In Dallas, staff questioned students about their use of cigarettes, alcohol, and drugs during their health maintenance exams, and during other routine examinations,

TABLE 6.3

Percentages of survey respondents by frequency of cigarette smoking, alcohol consumption and illegal drug use, by site[a,b]

	Gary		Jackson		Dallas		Quincy	
	Clinic	Non-Clinic	Clinic	Non-Clinic	Clinic	Non-Clinic	Year 2	Pre-Clinic
Behavior								
Cigarette smoking								
1	82	79	93	86	94	92	94	94
2	10	13	4	8	3	5	5	5
3	2	3	1	1	0	0	0	1
4	2	2	1	2	1	1	0	0
5	4	4	2	4	1	1	1	0
6	-	-	-	-	1	2	1	0
p value[c]	.24		.06		.42		.26	
Alcohol consumption								
1	61	48	70	62	71	59	62	64
2	23	35	21	22	22	28	27	27
3	9	9	6	9	4	8	6	6
4	6	8	2	6	1	4	3	2
5	2	2	1	2	0	1	1	1
6	-	-	-	-	1	1	2	0
p value[c]	.000		.01		002		.26	
Illegal drug use								
1					94	90	97	96
2					4	6	2	3
3		NA[d]		NA[d]	2	3	0	1
4					0	1	0	0
5					0	0	0	0
6					0	0	0	0
p value[c]					.46		.27	

a Based on Student Health Survey data; see footnote "a" in Table 6.1 for additional analysis information.

b Data in Gary and Jackson were based upon the frequency of behaviors during the previous four weeks and the following scale was used:

1 = Never 4 = Several times each week
2 = A couple of times 5 = Everyday
3 = About once each week

Data in Dallas and Quincy were based upon the "normal" frequency of behaviors and the following scale was used:

1 = Never or rarely 4 = Several times a week
2 = Once in a while 5 = Almost every day
3 = About once a week 6 = Several times a day

c Based on chi-square tests of significance.

d NA means not available.

TABLE 6.4

Unstandardized regression coefficients for "clinic presence" variable, after controlling for specified background variables[a], in regression models predicting frequency of cigarette smoking, alcohol consumption and use of illegal drugs, by site[b,c]

Dependent variables	Gary	Jackson	Dallas	Quincy
Cigarette smoking	-.01	-.21	-.04	.04
(N)	(1,173)	(785)	(1,167)	(1,166)
p value[c] .	88	.001	.41	.25
Alcohol consumption	-.12	-.23	-.19	.08
(N)	(1,178)	(784)	(1,165)	(1,168)
p value[c]	.04	.001	.002	.12
Illegal drug use	NA[d]	NA[d]	-.07	-.02
(N)			(1,166)	(1,166)
p value[c]			.05	.14

a The following background variables were statistically controlled in the regression equations: gender, age, grade point average, plans for school future, receipt of food stamps, receipt of free lunch, and number of parents in the household.

b Based on Student Health Survey data. See footnote "a" in Table 6.1 for additional analysis information.

c Based on "change in F" tests of significance.

d NA means not available.

and appropriately counseled students who indicated some use. Counseling for cigarette smoking and alcohol use was usually brief and was not followed up, unless the student indicated these behaviors were a problem. Students using drugs, on the other hand, were referred for further follow-up by a special counselor. In Jackson, the staff administered a psychosocial assessment to all students when they first came to the clinics. Those who indicated use of cigarettes, alcohol or drugs were counseled and scheduled for follow-up counseling sessions. Clinic staff in Jackson identified only a small number of students in need of this type of counseling, however. No doubt some students were reluctant to discuss these sensitive issues with clinic staff.

Sexual Activity

The data from the Student Health Survey provided no evidence that school-based clinics promoted sexual activity among students at their respective schools. Three questions were asked concerning sexual activity: "Have you ever had sex?" and, if yes, "How old were you when you first had sex?" and "How many times have you had sex within the past four weeks?" Table 6.5 reports the percentages of students who had ever had sex. It shows that large proportions of students were sexually active.

No significant differences were found between the clinic and non-clinic samples in the percentage of students who had ever had sex, using chi-square analyses. A difference was found between the clinic and non-clinic school in Muskegon when regression analysis controlled for background characteristics (Table 6.6). A smaller percentage of students at the Muskegon clinic school had ever had sexual intercourse compared with those at the non-clinic school. These regression and chi-square analyses indicated that school-based clinics, including those that provide contraceptives, are not associated with an increased percentage of students who are sexually active.

The analysis of age at first intercourse and frequency of intercourse was limited to sexually active students. In two sites, Jackson and Dallas, the mean age at first intercourse was older at the clinic schools than at the non-clinic schools ($p < 0.01$), using both chi-square (Table 6.5) and regression analyses (Table 6.6). In Gary, this difference approached significance ($p < 0.06$). In

TABLE 6.5

Percentages of students who ever had sex, mean age at first intercourse, and mean number of times students had sex in the last four weeks by sites[a]

	Gary		Muskegon		Jackson		Dallas		Quincy			San Francisco	
	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Year2	Year1	Pre-clinic	Year2	Pre-clinic
Percent ever had sex	71	72	79	83	87	84	84	84	86	88	86	51	50
(N)	(660)	(637)	(433)	(837)	(309)	(515)	(395)	(883)	(667)	(629)	(518)	(430)	(846)
p value[b]	.60		.09		.22		.91		.90	.45		.70	
Mean age at first intercourse[c]	13.8	13.5	NA[d]	NA	13.6	12.9	13.5	12.8	13.1	13.1	13.1	14.0	13.9
(N)	(473)	(475)	NA	NA	(265)	(416)	(318)	(713)	(571)	(537)	(436)	(216)	(383)
p value[e]	.053		NA		.000		.000		.97	.97		.69	
Mean number of times had sex in last 4 weeks[c]	2.4	2.4	3.2	3.5	2.4	2.7	2.8	2.7	3.4	3.3	3.3	2.3	3.1
(N)	(476)	(466)	(324)	(729)	(301)	(496)	(302)	(690)	(552)	(529)	(425)	(208)	(398)
p value[e]	.99		.32		.36		.72		.08	.21		.02	

a Based on Student Health Survey; see footnote "a" in Table 6.1 for additional analysis information

b Based on chi-square tests of significance.

c Analysis restricted to sexually active students only.

d Not available.

e Based on t-tests of significance.

Jackson, the mean age was 13.6 years at the clinic school compared with 12.9 years at the non-clinic school, while in Dallas the mean ages were 13.5 years and 12.8 years at the clinic school and non-clinic school, respectively.

The results on the mean age at first intercourse indicate that many of the students surveyed were sexually active before entering high school. Because of the limited potential of the school-based clinics to affect the sexual activity of the students before they attended the clinic schools, an additional analysis was done which excluded those students who were sexually active before entering high school. Comparing students who had never had sex at the time of the survey with those whose first sexual experience was at age 15 or older, regression analyses (not shown) indicated no differences between the clinic and non-clinic schools in the percentages of students who had become sexually active after entering high school.

In only one site, San Francisco, the sexually active adolescents surveyed after the clinic opened reported engaging in sexual intercourse in the four weeks prior to the administration of the survey less frequently ($p < 0.05$) than did those surveyed before the clinic opened (Tables 6.5 and 6.6). The mean frequencies

were 3.1 times in the pre-clinic sample and 2.3 times in the post-clinic sample. In none of the six sites did the students in clinic schools report having intercourse significantly more frequently than in the non-clinic schools.

Much of the debate over school based clinics has focused upon whether contraceptive counseling and provision of contraceptives increases the likelihood that students will engage in sexual intercourse. The results presented here indicate that this is not the case. Many students enter high school having already initiated sexual intercourse. There is no evidence that there were more sexually active students in schools with clinics, compared with schools without clinics. The clinics neither hastened the initiation of sexual activity nor promoted greater frequency of intercourse among its students. In some sites, in fact, age at first intercourse was older or frequency of intercourse was lower at the clinic schools.

The potential for clinics to reach students before entering high school existed in Dallas, where adolescents were seen before entering school. This is not the typical school-based clinic model, however. Programs with clinics at the junior-high or middle-school level also may have an impact on age at first intercourse by reaching them in the earlier grades.

TABLE 6.6

Unstandardized regression coefficients for "clinic presence" variable, after controlling for specified background characteristics[a], in regression models predicting three measures of sexual activity, by site[b]

Dependent variables	Gary	Muskegon	Jackson	Dallas	Quincy Year 1	Quincy Year 2	San Francisco
Ever had sex	.00	-.06	.03	.01	-.01	.01	.01
(N)	(1238)	(1220)	(785)	(1223)	(1116)	(1160)	(1143)
p value[c]	.95	.002	.27	.61	.48	.72	.76
Mean age at first intercourse[d]	.17		.42	.47	-.06	-.08	-.17
(N)	(870)	NA[e]	(645)	(1006)	(949)	(983)	(554)
p value[c]	.19		.03	.005	.70	.57	.34
Mean number of times had sex in last four weeks[d]	-.07	-.63	-.60	-.08	.31	.40	-.92
(N)	(865)	(545)	(641)	(968)	(928)	(956)	(557)
p value[c]	.80	.13	.09	.78	.31	.18	.02

a The following background variables were statistically controlled in the regression equations: gender, age, grade point average, plans for school future, receipt of food stamps, receipt of free lunch, and number of parents in the household.

b Based on Student Health Survey data; see footnote a in Table 6.1 for additional analysis information.

c Based on 'change in F' tests of significance.

d Analysis includes sexually active students only.

e Not available.

Contraceptive Use

A comparison between the clinic and non-clinic samples in the percentages of sexually active students who used any method of contraception at last intercourse and those who used either condoms or pills is presented in Table 6.7. Because the second category excludes less effective methods such as rhythm and withdrawal, it is the more valid measure of assessing pregnancy prevention.

In Muskegon and San Francisco, significantly more students from clinic schools than students from non- or pre-clinic schools used some type of contraception at last intercourse. In Muskegon, 75% of the sexually active students in the clinic school used any method of birth control the last time they had sex, while only 61% of the students at the comparison school did so. The corresponding proportions for the more effective methods — condoms and birth control pills — were 67% and 51%. These differences remained significant after regression analyses to control for background characteristics (Table 6.8).

In San Francisco, the percentage of sexually active students contracepting increased from 66% before the clinic opened to 75% two years after the clinic opened. Those using effective methods increased from 39% to 62% during the same time period (Table 6.7). The differences found for effective means of contraception were significant using regression analyses, as well.

In Gary, Jackson, and Quincy, no significant differences were found in the use of contraception. In Dallas, the non-clinic school actually had a significantly higher percentage of students who used any method of contraception. This, however, was due primarily to greater use of rhythm and withdrawal. There was no significant difference in the use of effective methods by sexually active students in the two schools. Controlling for background factors through regression analyses, the same results were found (Table 6.8).

In sum, differences in the likelihood that sexually active students would use contraceptives at last intercourse were found in Muskegon, where students could obtain vouchers for condoms and birth control pills, and in San Francisco, where counseling and referrals were available. No differences were found in the three

TABLE 6.7

Percentages of sexually active students using contraception by site[a,b]

	Gary		Muskegon		Jackson		Dallas		Quincy			San Francisco	
	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Year 2	Year 1	Pre-clinic	Year 2	Pre-clinic
% students using any method of birth control at last intercourse	67	66	75	61	66	59	62	71	77	75	73	75	66
(N)	(460)	(446)	(338)	(745)	(266)	(421)	(315)	(722)	(574)	(544)	(440)	(221)	(406)
p value[b]	.74		.000		.09		.007		.09	.38		.02	
% students using condoms or pills at last intercourse	61	58	67	51	62	55	47	49	66	67	66	62	39
N	(454)	(435)	(335)	(726)	(261)	(413)	(308)	(710)	(570)	(524)	(424)	(218)	(391)
p value[b]	.32		.000		.09		.49		.75	.65		.000	

a Based on Student Health Survey; see footnote "a" in Table 6.1 for additional analysis information.

b Based on chi-square tests of significance.

TABLE 6.8

Unstandardized regression coefficients for "clinic presence" variable, after controlling for specified background variables[a], in regression models predicting two measures of contraceptive use[b], by site.[c]

	Gary	Muskegon	Jackson	Dallas	Quincy		San Francisco
					Year 1	Year 2	
Dependent variables							
Use of any method of birth control at last intercourse	.01	.15	.05	-.09	.02	.03	.06
(N)	(872)	(972)	(653)	(1009)	(954)	(983)	(560)
p value[d]	.71	.000	.19	.008	.53	.30	.14
Use of condoms or pills at last intercourse	.04	.17	.06	-.02	-.01	-.02	.23
(N)	(857)	(967)	(641)	(991)	(935)	(977)	(560)
p value[d]	.30	.000	.17	.56	.57	.54	.000

a The following background variables were statistically controlled in the regression equations: gender, age, grade point average, plans for school future, receipt of foodstamps, receipt of free lunch, and number of parents in the household.

b Analysis includes sexually active students only.

c Based on Student Health Survey data; see Table 6.1 for further analysis information.

d Based on change in F-test of significance.

TABLE 6.9

Percentages of sexually active students using different methods of contraception in Muskegon and San Francisco[a]

	Muskegon		San Francisco	
	Clinic	Non-clinic	Year 2	Pre-clinic
Contraceptive Method				
Condoms & Pills	NA[b]	NA	10	5
Condoms & Foam	NA	NA	3	1
Condoms	45	31	35	20
Pills	23	19	14	12
Rhythm	1	0	1	2
Withdrawal	6	9	9	21
Other	2	2	2	2
No Method Used	24	38	26	35

a Based on Student Health Survey data; see footnote "a" in Table 6.1 for additional analysis information.

b Not included in questionnaire.

sites where contraceptives were dispensed, even after controlling for background characteristics through regression analyses. Thus, these data suggest that accessability, by itself, was not sufficient to significantly increase contraceptive use.

Data were available from Muskegon and San Francisco with regard to specific types of contraceptives used (Table 6.9).

San Francisco

Nearly all of the increase in contraceptive use in San Francisco was found in condom use which increased in condom use (with or without foam or pills) from 26% before the clinic opened to 48% two years after the clinic opened. The percentages of students relying on withdrawal as a method of contraception decreased during that time.

There were several programmatic explanations for the results in San Francisco. The clinic health educator co-taught several family life education courses offered at the school. The school clinic implemented an intensive AIDS education program in the school. This program consisted of four, hour-long classes including factual information, a presentation by a 21-year-old male with AIDS, and skits

with peer educators encouraging students to practice communication skills. A peer education program was run by the clinic health educator in which trained youth did one-to-one counseling and staged events to publicize STD-related issues.

The clinic also used sports and health physicals as an opportunity to talk to students about their sexual behavior and the necessity of using condoms as a means of AIDS prevention. Coupons were distributed by the clinic which were redeemable at the health department for free condoms.

Living in a city with a high prevalence of AIDS, students also were exposed to a wide variety of public health campaigns promoting the use of condoms as a way of preventing the disease, including the presentation of factual information on television and in posters, with fairly graphic demonstrations of proper use of condoms. Other clinics in the community, both public and private, made it a policy to give condoms to anyone requesting them, without having to register or complete any forms.

Though it is impossible to determine from the survey data which of these interventions may have had the greatest impact on the students' contraceptive behavior, it is evident from the data that the increased use of condoms explains the increased contraceptive use in San Francisco.

Some possibility exists that differences in the sociodemographic composition of the pre- and post-clinic samples may have confounded the results with regard to contraceptive use. Regression analyses controlling for these factors, however, result in the same findings as the chi-square analyses, making this an unlikely explanation.

Muskegon

There were greater percentages of students using birth control pills and/or condoms in the Muskegon clinic sample compared with the non-clinic sample. However, condom use exceeded that in the comparison school by 14 percentage points, while pill use was only 4 percentage points higher than in the comparison school.

Clinic programs may have contributed to the greater use of contraception in the clinic school. These programs included: the classroom presentations by clinic staff on human sexuality issues; individual consultations provided by clinic staff on family planning and reproductive health issues with considerable emphasis on condoms for both males and females; and gynecological examinations provided at the clinic with the vouchers for birth control pills or condoms to be obtained free of charge at a local family planning clinic. As has been indicated in Chapter 4, however, these vouchers were used by only a small number of students. During one school year, only 28 males obtained vouchers and subsequently received condoms at the Planned Parenthood clinic. Sixty-seven females obtained vouchers for contraceptives and then went to the clinic to pick them up. Most of these female students obtained birth control pills rather than condoms.

Beyond clinic involvement, the tenth-grade health teacher included a discussion of sexually transmitted diseases in his course and actively promoted the use of condoms as a means of prevention. Also notable is the fact that the middle school in Muskegon, from which most of the high school students had come, had a clinic in the school that provided some instruction in sexuality and reproductive health. The clinic and non-clinic schools did not differ greatly, however, in the extent to which sexuality education was available to them, since the comparison school also provided a strong program.

There are possible but unlikely methodological issues that might have influenced the results in Muskegon. The Muskegon comparison school was located farther from the clinic than were comparison schools in the other sites, raising the possibility of greater differences in community values and the availability of sources of contraception. Also, surveys were administered at the clinic and non-clinic schools at different times of the year — in the spring and fall, respectively.

Clinic users and non-users

Comparisons were made between students who used the clinic for contraceptives and those who did not in the clinic-schools in Jackson, Dallas, and Quincy (Table 6.10). In Jackson, Dallas and Quincy (Year 1), differences were found between those using and not using the clinic for contraceptives in their type and use of any contraceptives. In Jackson, 77% of the students who had ever used the clinic to obtain contraceptives had used an effective method at last intercourse, compared with 48% of the students who had not used the clinic for this purpose. In Dallas, the respective user and nonuser figures were 67% and 32%. In Quincy (Year 2) a significant difference was found between those using and not using the clinic for contraceptives only with regard to the percentage using pills or condoms (but not in overall contraceptive use); 76% of the clinic users had used pills or condoms at last intercourse, compared to 61% of nonusers.

The regression analyses controlling for background characteristics confirmed these findings.

The group going to the clinic for contraceptives undoubtedly was comprised of more highly motivated individuals who probably would have used some type of contraception even if they had to go elsewhere to obtain it. The clinic

TABLE 6.10

Percentages of sexually active students in clinic schools who used birth control the last time they had sex by whether or not they obtained contraceptives at school clinic[a,b]

	Jackson		Dallas		Quincy Year 1		Quincy Year 2	
	Clinic users	Non-clinic-users	Clinic users	Non-clinic-users	Clinic users	Non-clinic users	Clinic users	Non-clinic users
%students using any method of birth control at last intercourse	79	51	74	53	89	74	84	78
(N)	(134)	(131)	(107)	(175)	(211)	(164)	(202)	(213)
p value[b]	.000		.000		.001		.11	
% students condoms or pills at last intercourse	77	48	67	32	82	65	76	61
(N)	(128)	(130)	(100)	(169)	(206)	(162)	(202)	(209)
p value[b]	.000		.000		.000		.002	

a Based on Student Health Survey; see footnote "a" in Table 6.1 for additional analysis information.

b Based on chi-square tests of significance.

program may have provided the motivation for some students to come to the clinic for contraceptives instead of going elsewhere. Students who obtained contraceptives from the clinic were quite likely to use contraceptives when they had intercourse.

The question arises then: "If many students who used the clinic to obtain contraceptives actually used them, then why didn't the clinics demonstrate a clearer impact on contraceptive behavior of the total school population?"

Contraceptive sources

Part of the reason it is difficult to measure a difference between clinic and non-clinic schools with regard to contraceptive use lies in the substitution of providers of contraceptives demonstrated below. Table 6.11 presents the percentages of students who actually used no contraception, used withdrawal or rhythm, or obtained methods of birth control from either the school clinic or sources other than the clinic the last time they had sex. This table clearly indicates that in Jackson, Dallas, and Quincy, where the comparison schools did not have a school clinic that prescribed or dispensed contraceptives, most students used contraception; they simply obtained their methods of birth control elsewhere. In both Jackson and Dallas, students in the comparison school were much more likely to obtain contraceptives from a family planning clinic or drug

TABLE 6.11

Percentages of sexually active students by source of contraceptives used at last intercourse, by site[a]

	Gary		Muskegon		Jackson		Dallas		Quincy			San Francisco	
	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Year 2	Year 1	Pre-clinic	Year 2	Pre-clinic
	(443)	(432)	(333)	(663)	(259)	(422)	(306)	(709)	(552)	(430)	(527)	(207)	(384)
Source													
School clinic	—	—	17[b]	—	30	—	30	—	34	33	—	—	—
Family planning clinic	18	14	13	20	10	15	5	18	—	—	—	7	7
Doctor	9	5	10	5	5	7							
Health department	—	—	—	—	—	—	—	—	7	12	35	—	—
Hospital clinic	1	1	3	3	1	5	1	4	—	—	—	9	4
Drug store	26	32	9	12	9	19	5	12	15	12	15	27	18
Friend/relative	7	6	15	10	8	9	2	11	6	7	9	10	6
Other	2	1	2	1	1	1	2	1	2	2	3	1	2
Not applicable: Used withdrawal or rhythm	2	5	7	10	1	3	13	19	10	6	7	10	21
No birth control used	35	36	24	39	35	41	39	30	24	26	28	26	36

a Based on Student Health Survey data; see footnote "a" in Table 6.1 for additional analysis information.

b Received vouchers that were redeemed at local family planning clinic.

store. In Quincy, after the clinic opened in the school, there was little change in the percentage who obtained contraceptives from a drug store, but there was a dramatic drop (from 35% to 7%) in the percentage who obtained them from the health department.

In order to further investigate any "substitution effect," students at the clinic schools in Muskegon, Jackson, and Dallas were asked where they would go to get contraceptives if there were no school clinic (not shown). Though the responses were hypothetical, between 78% and 85% of the students claimed they would find another source — another clinic, a doctor, or the drug store. Between 6% and 13% reported they would have sex without contraception. Only 4% or 5% of the students at each site reported that they would refrain from sexual intercourse if there were no clinic at school. Males in all three sites were more likely to plan to have unprotected intercourse than were females.

In Quincy, where the health department was moved from downtown to a site further away from the school grounds, an examination of the school clinic records and health department records during the first year after the opening of the school clinic revealed that there was a nearly even shift of about 100 female clients from the health department to the school clinic. Though undoubtedly these were not the same hundred students, this does indicate that the school clinic did absorb those health department clients who were students, and is consistent with the findings reported above.

Additional information available from the Quincy sample in the post-clinic survey demonstrated that sexually active students who typically obtained their contraceptives from the school clinic were not more likely to have used some form of birth control the last time they had sex than were sexually active students who typically obtained their contraceptives from the drugstore, doctor, or health department. However, all of these groups were more likely to have used some form of contraception at last intercourse than were sexually active students who typically obtained contraceptives from a friend. Between 81% and 86% of those obtaining contraceptives from an "institution," compared with 51% who obtained them from friends, used some form of birth control at last intercourse (not shown). One possible explanation is that students who relied upon their friends for contraceptives were at an earlier stage in their sexual and contraceptive "careers" and had not yet established patterns of obtaining contraceptives themselves.

Reasons for not using contraceptives

Sexually active students at four sites — Gary, Jackson, Dallas, and San Francisco — were asked questions about reasons for ever not using a contraceptive method during intercourse. They were asked to indicate all the reasons that might apply to their past behavior. The percentages of sexually active students who identified each of the reasons listed are shown in Table 6.12. The two most common reasons identified were:

- Didn't expect to have sex (21% to 57%); and
- Just didn't think pregnancy would occur (14% to 42%).

Other frequently cited reasons included:

- Partner didn't want me to use birth control (7% to 17%);
- Didn't know where to get birth control (2% to 19%);
- Felt uncomfortable going to a strange clinic (8% to 24%); and
- Just didn't get around to it (9% to 24%).

The most frequently cited reasons were not related to access to contraceptives, but rather were personal expectations of sexual behavior or perception of low risk of pregnancy. Some were related to lack of knowledge, some to fear of

TABLE 6.12

Percentages of sexually active students citing reasons for ever not using contraceptives at last intercourse, by site[a]

	Gary		Jackson		Dallas		San Francisco	
	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Year 2	Pre clinic
Reason	(467)	(460)	(259)	(404)	(330)	(739)	(118)	(425)
Didn't know about birth control	9	7	10	5	4	3	7	8
Didn't care if I (partner) got pregnant	3	4	4	3	4	3	8	6
Wanted to get pregnant (get girlfriend pregnant)	3	4	4	3	4	3	4	3
Just didn't think pregnancy would occur	15	14	28	29	19	20	42	25
Thought too young to get pregnant	9	11	7	7	6	5	10	6
Thought sex not often enough to get pregnant	9	9	15	11	11	9	11	10
Didn't expect to have sex; was surprise	42	38	29	33	21	23	57	32
Thought it morally wrong to use birth control	2	4	5	3	4	3	7	7
Thought it was wrong to plan for sex	NA[b]	NA	9	5	6	6	9	7
Birth control was partner's responsibility	NA	NA	NA	NA	4	4	NA	NA
Partner didn't want me to use birth control	11	17	10	11	7	6	14[c]	8[c]
Waiting to be closer to boy/girlfriend	7	8	9	6	5	5	5	8
Thought my parents had to be told	7	6	9	6	8	5	8	4
Afraid family would find out	10	12	11	9	11	6	15[c]	8[c]
Thought it was dangerous to use birth control	7	9	14	12	16	7	11	12
Thought not old enough to get birth control	9	8	9	6	4	3	7	6
Birth control costs too much	6	7	5	3	3[c]	1[c]	5	5
Didn't know where to get birth control	8	6	6	6	2	4	19	9
Too difficult to get to clinic	4	5	5	7	1	2	11	4
Felt uncomfortable going to strange clinic	18	14	12	12	8	7	24	11
Afraid to be examined	10	10	10	9	12[c]	8[c]	16	9
Birth control would reduce sexual pleasure	NA	NA	5	7	6	6	18[c]	9[c]
Birth control would be messy to use	NA	NA	4	3	5	1	3	5
Just didn't get around to it	15	18	13	15	9	10	24	18
Other reasons	12	9	11	9	7	6	8	5

a Based on Student Health Survey data; see footnote "a" in Table 6.1 for additional analysis information.

b NA means not available because the items were not included on the questionnaire. Differences between the clinic and non-clinic or pre-clinic schools on this particular item were statistically significant at the .05 level, using chi-square tests of significance.

c Differences between the clinic and non-clinic or pre-clinic schools on this particular item were statistically significant at the .05 level, using chi-square tests of significance.

contraceptives or of parents learning of their behavior, and others to a desire not to reduce pleasure.

There was no indication from these answers that sexually active students from the clinic schools were more comfortable with contraceptive use or more knowledgeable about pregnancy prevention than students in the comparison schools, suggesting a need for clinic outreach and education.

The validity of these findings was checked by comparing these reasons with whether students were more likely to have used contraception at last intercourse. This analysis (not shown) indicates some consistency between reasons cited and behaviors. Those checking each of the five most commonly cited reasons for ever not using contraception were more likely not to have used contraception at last intercourse (41%) than were those not checking each of these five items (31%).

TABLE 6.13

Percentages of sexually active students who have been pregnant (or gotten someone pregnant) by site[a]

	Gary		Muskegon		Jackson		Dallas		Quincy			San Francisco	
	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Clinic	Non-clinic	Year 2	Year 1	Pre-clinic	Year 2	Pre-clinic
Percent ever pregnant	20	20	18	17	22	17	24	14	11	15	13	17	19
N	(471)	(461)	(346)	(665)	(270)	(437)	(288)	(672)	(556)	(534)	(438)	(201)	(397)
p value[b]	.87		.67		.06		.000		.42[c]	.48[c]		.49	
Percent pregnant in last 12 months	11	11	11	12	13	9	13	9	7	9	9	11	13
N	(457)	(445)	(346)	(666)	(260)	(404)	(288)	(670)	(556)	(531)	(437)	(201)	(379)
p value[b]	.81		.73		.09		.06		.19	.77		.45	

a Based on Student Health Survey data; see footnote a in Table 6.1 for additional analysis information.

b Based on chi-square tests of significance.

c Both Year 1 and Year 2 were compared to pre-clinic data

Pregnancy

Students at all six sites were asked whether they ever had been pregnant or gotten someone pregnant, and whether they had been pregnant or gotten someone pregnant within the last 12 months. Chi square tests between the percentages of students who ever had been pregnant or gotten someone pregnant, demonstrated a difference only in the Dallas clinic, where the pregnancy rates were higher in the clinic school (Table 6.13). This difference was only marginally significant, however, after background characteristics were controlled for in the regression analysis (Table 6.14).

The proportions of students having been pregnant or having gotten someone pregnant within the last 12 months is a better indication of the possible clinic impact on this outcome, since it eliminates students who might have been pregnant before entering high school (though it still misses those who might have dropped out of school due to pregnancy). No significant differences were found in the pregnancy rates for the past 12 months between clinic and non-clinic schools, using either chi-square or regression statistics to analyze the data.

Timing of pregnancies vis-a-vis clinic utilization

In most of the sites, the Student Health Survey asked students who ever had been pregnant (or gotten someone pregnant) whether they had ever used the school clinic, discussed contraception with clinic staff, or received contraceptives from the clinic prior to their pregnancy.

The data in Table 6.15 indicate that 44% to 90% of the pregnancies occurred to students who never had attended the clinic. The Dallas clinic had the largest percentages — 48% of the females and 56% of the males — who had been to the clinic prior to conception. This may be related to the clinic's routine health maintenance examinations for incoming students. Nevertheless, almost half of the pregnancies in the Dallas clinic school occurred before clinic use; some pregnancies may have occurred prior to the students' attending the clinic high school.

TABLE 6.14

Unstandardized regression coefficients for "clinic presence" variable, after controlling for specified background characteristics,[a] in regression model predicting pregnancy within past 12 months for sexually active students, by site[b]

	Gary	Muskegon	Jackson	Dallas	Quincy		San Francisco
					Year 1	Year 2	
Dependent variable							
Ever pregnant							
	-.01	.00	.01	.03	-.01	.02	.03
(N)	(855)	(955)	(656)	(932)	(944)	(973)	(559)
p value[c]	.70	.99	.65	.04	.53	.44	.35
Pregnancy in last 12 months							
	-.00	-.02	.01	.02	-.004	.02	.03
(N)	(827)	(955)	(615)	(930)	(940)	(972)	(542)
p value[c]	.65	.47	.62	.46	.85	.20	.32

a The following background variables were statistically controlled in the regression equations: gender, age, grade point average, plans for school future, receipt of food stamps, receipt of free lunch, and number of parents in the household.

b Based on Student Health Survey data; See footnote "a" in Table 6.1 for further analysis information.

c Based on change in F-test of significance.

Between 62% and 89% of the reported pregnancies occurred prior to any type of contraceptive counseling with clinic staff, and between 68% and 89% occurred prior to receiving any type of contraceptives from the clinic. These data demonstrate the need for more aggressive outreach to bring students into the clinic before they get pregnant.

About a fourth of the pregnancies occurred after the student had obtained contraceptives from the clinic — indicating the need for more effective follow-up in some clinics.

Birthrates

School enrollment and hospital records were used to calculate birth rates in Gary (Figure 6.1) and Muskegon (Figure 6.2). In Gary, there were variations in the birth rates over time, but the rates varied similarly for both the clinic and control schools, indicating no impact of the school-based clinic on birth rates. The clinic in Gary did not emphasize family planning and neither prescribed nor dispensed contraceptives.

In Muskegon, where the clinic had a much stronger reproductive health program and where survey data indicated greater condom use compared with the non-clinic school, comparisons were made in the birth rates for the clinic school before and after the clinic opened. There was a decline in the birth rates in Muskegon over time. However, the small number of years of baseline data and fluctuations in the data prevent a determination that these rates were due to clinic efforts.

TABLE 6.15

Percentages of students who were ever pregnant (or ever got someone pregnant) who became pregnant prior to using the clinic, by gender and site[a,b]

	Gary		Muskegon		Jackson		Dallas		Quincy		San Francisco	
	F[d] (53)	M[d] (32)	F[d] (40)	M[d] (21)	F[d] (39)	M[d] (19)	F[d] (48)	M[d] (21)	F[d] (45)	M[d] (19)	F[d] (20)	M[d] (10)
Pregnancy prior to using clinic for any reason	77	81	70	62	64	68	44	52	NA[c]	NA[c]	90	80
Pregnancy prior to discussion of birth control in the clinic	89	84	65	81	77	74	62	67	NA[c]	NA[c]	80	80
Pregnancy prior to receiving prescription/voucher for contraceptives in clinic	NA[c]	NA[c]	77	90	79	NA[c]	NA[c]	NA[c]	NA[c]	NA[c]	NA[c]	NA[c]
Pregnancy prior to obtaining contraceptives from the clinic	NA[c]	NA[c]	NA[c]	NA[c]	82	68	77	76	76	79	NA[c]	NA[c]

a Based on Student Health Survey data.

b Data are based upon all pregnant students (or students who got someone pregnant); no exclusion due to race.

c Not available.

d. F=Female, M=Male

FIGURE 6.1

Gary

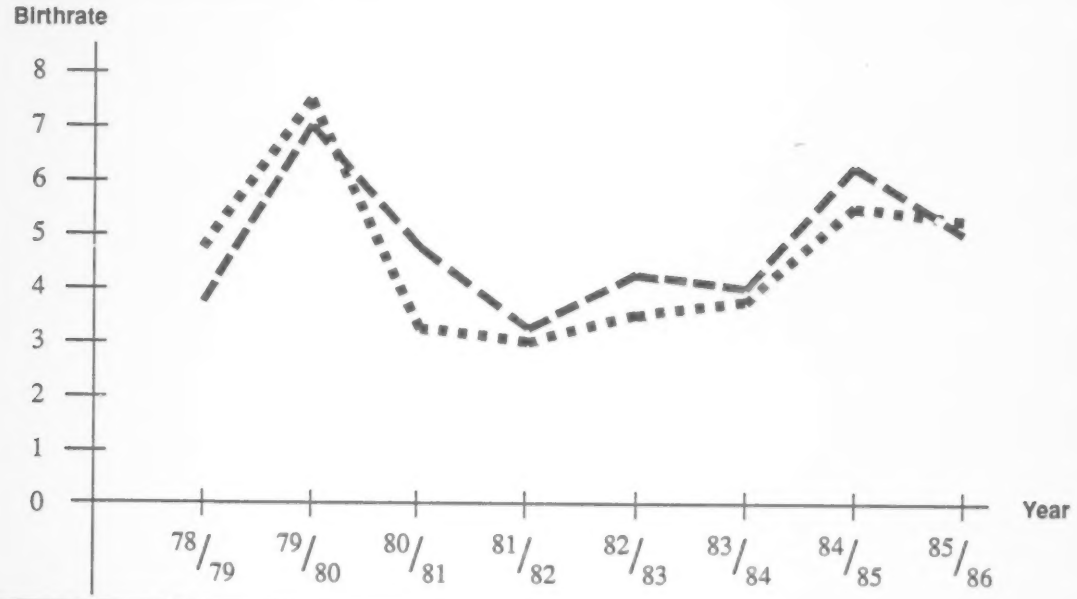
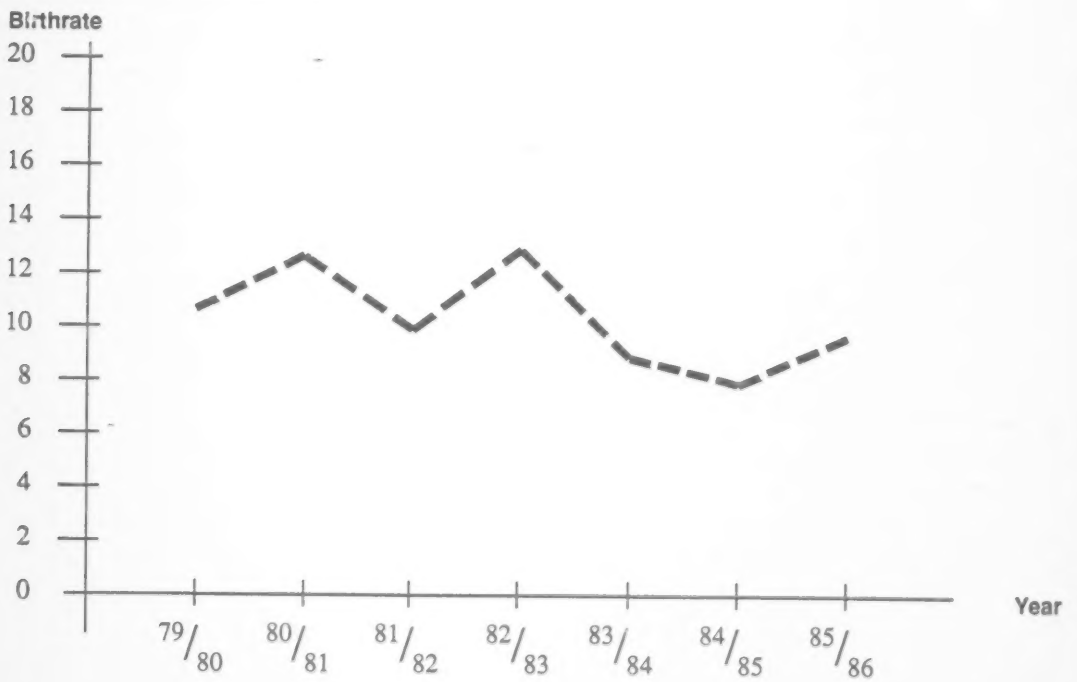


FIGURE 6.2

Muskegon



Conclusions

Promoting change in adolescent health and risk-taking behaviors is a difficult and complex task. Given the myriad influences on youth, it is unreasonable to expect the presence of a school-based clinic alone to have a significant impact upon these behaviors, though these clinics often are touted as the panacea for many ills.

It is clearly inappropriate, for example, to expect school-based clinics to reduce the rate of absenteeism, especially absences due to skipping school, unless the clinic has a dropout prevention program. In one instance, it appears that the presence of a clinic encouraged students to find reasons other than sickness to explain absences, however.

It is very encouraging that in three of the sites, the presence of a school-based clinic was associated with a lower frequency of alcohol consumption in the clinic schools. In Jackson, where students at the clinic school were administered a psychosocial assessment at their first clinic visit in order to identify students already engaging in risk-taking behaviors, students also reported smoking less frequently than students in the comparison schools. The impact on both smoking and drinking behavior is dependent on educational and counseling efforts, and these results demonstrate the possibilities for school-based clinic intervention in this area.

A common criticism of school-based clinics that dispense contraceptives is that they promote sexual activity among their students. This criticism is not supported by the results of this study. There were no differences between the clinic and comparison schools in the percentages of students who reported being sexually active, regardless of whether or not the clinic school dispensed contraceptives.

In two clinic schools dispensing or providing vouchers for contraceptives, the mean ages at first intercourse among sexually active students were older for the clinic than the comparison samples. The fact that the mean ages were so low, however, is an indication of the difficulty faced by school-based clinics in addressing the needs of teenagers. Most of the sexually active students in these high schools had become sexually active before they began attending high school. Clinics can not prevent the initiation of intercourse among students who entered high school after becoming sexually active. Rather, they must do what they can — in cooperation with the larger community — to reduce sexual activity and to prevent intercourse from resulting in unintended pregnancies.

Among sexually active students the percentage of those using any method of contraception was greater for the clinic schools than for the non-clinic schools in Muskegon, where the clinic provides vouchers for contraceptives, and in San Francisco, where the clinic does not. This increase in contraceptive use in San Francisco may be related to intensive AIDS education campaigns in the school, in local media, and throughout the community. No doubt the high prevalence of AIDS in San Francisco makes condom use a very salient issue there. The effect of AIDS education is supported by the fact that much of the increase in contraceptive use was found in condom use rather than birth control pill use. In Muskegon, not only were vouchers for contraceptives available for the students, but the clinic had an educational component designed to promote contraceptive use. In both of these schools, education was a key element in their pregnancy prevention programs.

Students in school-based clinics dispensing contraceptives were not significantly more likely to use contraception than students in the comparison schools in three sites. However, all school-based clinics dispensing contraceptives were successful in facilitating contraceptive use among sexually active students who used the clinic to obtain them. Those students were more likely to

use condoms or birth control pills at last intercourse than those who did not use the clinic for this purpose.

The dual findings — that some school-based clinics dispensing contraceptives did not seem to have an impact on contraceptive use among sexually active students, and that in one school not dispensing contraceptives, contraceptive use (especially condom use) increased significantly after the clinic opened — suggests that school health providers need to consider educational programs or other programs to increase students' motivation to use contraceptives. Intensive information campaigns may help motivate students and enable them to find the sources of contraceptives, even if these sources are outside of the school. The availability of contraceptives within the school context clearly facilitates the use of contraceptives, but does not automatically provide greater incentive to use them.

As in the discussion in the preceding chapter concerning alternative sources of medical care, it is important to recognize that sexually active students have alternative sources of contraception as well. This may explain why no differences were seen between most of the clinic and non-clinic schools with regard to contraceptive use among sexually active students. There is no doubt a significant overlap between students who used the clinic for contraceptives because it was available to them and those who would have found another source had the clinic not been present at their school. Though some attempt was made to measure this, the students' reports were hypothetical. It would be short-sighted, however, to conclude that school-based clinics are ineffective at providing contraceptive services because there is no measurable impact compared to non-clinic schools. School-based clinics are meeting a need for these services, regardless of whether these needs might also be met by other means in the absence of the clinic.

From the data gathered, there was no clear indication that the presence of any of the school-based clinics reduced the pregnancy or birth rates. An early study from St. Paul indicated the presence of a school-based clinic significantly reduced the birth rate over a seven-year period. It was hoped at the beginning of this project that similar results would be found. In Gary, no differences were found in the longitudinal comparison of birth rates of the clinic and non-clinic schools. The clinic in Gary was not opened with this objective in mind, and it did not dispense contraceptives. In Muskegon, where the clinic did hope to prevent pregnancy and provided vouchers for contraceptives, a downward trend in birth rates was documented, but the few number of years observed and the fluctuation in the small numbers of births make interpretation of the results difficult.

In addition, the possible validity problems associated with self-report of pregnancy and the possible dropout problems due to pregnancy warrant refinement of these measures and further investigation in other school-based clinic settings.

CHAPTER 7

Strategies for Improving the Effectiveness of School-Based Clinics in Addressing Reproductive Health Issues

An important motivation for conducting this evaluation was to determine how well school-based clinics were addressing—or could address —the reproductive health needs of the students they serve. Specifically, CPO wanted to determine the extent to which school-based clinics might be able to reduce the rates of unintended pregnancies among their target population, given earlier research indicating that this potential existed.

Though this evaluation did not produce results demonstrating that school-based clinics had a significant impact on pregnancy or birth rates, the information gathered provides insight into how certain aspects of clinic operation might be improved to more fully utilize their potential to address the issues of reproductive health and pregnancy prevention.

The most important lesson learned from this study was that school-based clinics were not primarily family planning clinics. They varied widely in the degree to which they gave priority to preventing pregnancy. Though no clinic impact was found in terms of pregnancy in any of the clinic schools, there was some effect found in several schools in the percentages of students who were sexually active, the age at initiation of sexual intercourse, and the frequency of intercourse. There was also an increase in contraceptive use — especially condom use — in schools where AIDS was a patient issue and where the need for condom use was made salient to the students through school and community education and outreach programs. This salience did not depend solely on availability of contraceptives at the clinic, however.

Other important findings from the Student Health Survey and clinic records regarding students' attitudes and behaviors concerning sex and contraception included:

- Students' reasons for contraceptive nonuse included lack of knowledge, skills, motivation, and access;
- Many students became pregnant or got someone else pregnant prior to ever visiting the school clinic;
- Clinics provided substantial numbers of students with contraceptives, and those students who obtained contraceptives from the clinic generally used them; however, many sexually active students did not seek contraceptives from the clinics; and
- Dispensing or prescribing contraceptives did not guarantee that students in clinic schools would be more likely to use contraceptives than those in the comparison schools, probably because many teens who obtained contraceptives from the clinic already were motivated to avoid an unintended pregnancy, and would have obtained contraceptives elsewhere.
- Many females who obtained contraceptives from clinics stopped getting them within six months.

The Reproductive Health and Pregnancy Prevention Inventory

Prompted by these results, a better understanding of the important components of a comprehensive reproductive health and pregnancy prevention program was sought as part of this evaluation. The Reproductive Health and Pregnancy Prevention Inventory (discussed in Chapter 2) was developed as part of this process. Items were generated from literature reviews and discussions with family planning researchers and professionals and school-based clinic staff members. Twenty-four school-based clinic practitioners from different-sized clinics around the country, representing the full range of reproductive health policies and procedures, rated these items according to their importance in a comprehensive reproductive health program and in an effective pregnancy prevention program. This list and the evaluators' mean ratings for each criterion are found in Appendix A. Generally, the ratings for the importance of items in both reproductive health programs and pregnancy prevention programs correlated highly. A summary of the most important characteristics, based on these ratings, follows here:

- **Clinic staff** — The staff's warmth, empathy, openness, concern, and respect for teens received the highest ratings. The use of female clinicians, previous training in adolescent development, medicine, and sexuality, and previous experience working with teens were also judged to be important program components.
- **Access** — To ensure access, the panel thought it was particularly important for clinics to be open at least 20 hours a week; to make special arrangements for alternative providers during the summer and vacation periods if they are closed; and to have an effective mechanism in place to obtain parental consent. Students should not have to wait more than one week for a family planning visit, and ideally, should be able to walk into a clinic and be seen without an appointment.
- **Medical services and family planning visits** — All panel members, even those from clinics not currently prescribing/dispensing contraceptives, thought it was essential for reproductive health/pregnancy prevention programs to do so. Other services, particularly pregnancy and STD tests, were considered important. The frequency of family planning visits should be determined by individual need, but at a minimum, the panel believed, monthly follow-up is necessary until the patient is using his/her method appropriately. Procedures should be in place for students using contraceptives to return for follow-up and resupply when necessary. There also should be a system for reminding patients of scheduled appointments and contacting those who miss appointments.
- **Counseling** — Counseling concerning abstinence, the responsibilities associated with sexual activity, and contraceptive use also was perceived as an important function of the clinic. The panel thought there should be counseling on sexuality during routine clinic visits in addition to reproductive health visits, and that questions about sexuality should be part of every health assessment. If it is discovered that a student is engaging in unprotected intercourse, he or she should be given an appointment promptly for counseling and/or contraceptive care.
- **Confidentiality** — Confidentiality was rated as being extremely important. Specifically, students need to be assured that other students, school authorities, and their parents will not know about their visits for family planning without the students' consent. In order to ensure confidentiality, students should not work in the clinics, and medical records should be kept secure and separate from other school records. Counseling and examination rooms should be private.
- **Free services** — The panel felt it was essential that services and prescriptions be free or very inexpensive to prevent cost from posing a barrier to students. Sliding fee scales and partial payment should be allowed if students cannot pay even the minimal fees.

- **Access to information** — Waiting rooms should have pamphlets and other materials on sexual decision-making, contraception, and STDs and AIDS. These materials should be culturally sensitive and appropriate for both males and females.

- **Sex education** — A school sex education program that covers decision-making about abstinence and sexual activity, contraception, the probability of pregnancy, and STDs was considered a necessary complement to a school-based clinic hoping to effectively deal with reproductive health and pregnancy prevention. The program needs to teach communication skills to students to help them learn how to say no or how to insist on using some type of contraception when having intercourse.

- **Outreach** — Effective outreach in the school and community also was considered important. The staff should be visible in the school and should give classroom presentations describing the full range of services provided. They should work with the school nurse, teachers, and administrative staff to facilitate referrals to the clinic. The panelists thought it was important for clinics to have the support of parents and the broader community, and for clinics to be able to provide health care without excessive regulation by the school, community or state.

- **Evaluation** — Finally, the panel felt there should be evaluation and assessment of the clinic's programs to determine the degree of clinic utilization and the extent to which these programs were having an impact on students' sexual activity and/or contraceptive use. These assessments should be used to help the clinic make decisions about improving its services.

Characteristics of the Clinics

The Reproductive Health and Pregnancy Prevention Inventory was used to structure discussions with clinic staffs about the characteristics of their own clinics and information gathered from the Student Health Survey concerning their students' sexual and contraceptive behavior. All clinics were found to have the following characteristics: easy access; counseling services; assurances of confidentiality; outreach to the school concerning available services; high-quality staff; access to contraceptive information; and provision of free or inexpensive services.

The greatest differences were found among the clinics and their schools in 1) the quality of the sex education programs in the schools and 2) the policies and procedures for prescribing and dispensing contraception. It is the sex education programs and procedures for making contraceptives available that we would expect to help us understand the differences in results between the clinics on outcome variables related to pregnancy prevention.

In two schools, San Francisco and Muskegon, health educators made classroom presentations on issues related to sexuality. In San Francisco the health educator co-taught the family life education class to all tenth graders. In both schools, contraceptive use was greater among the clinic-school sample than among the comparison school sample.

In four of the six clinic schools, contraceptives or vouchers for contraceptives were available, but these clinics differed with regard to the ease with which these could be obtained. In Muskegon, female students were required to make up to three visits to the school clinic and a fourth to the Planned Parenthood clinic before receiving a voucher to obtain pills or condoms at a local family planning clinic. In contrast, in Dallas only one walk-in appointment was necessary for condoms (or pills, if it was the appropriate time in the menstrual cycle).

The relationships are not totally straightforward, however. Muskegon also provided considerable education and outreach to its students (though as noted in Chapter 6, not much more than its comparison school did). San Francisco, with no contraceptives available at all, saw an increase in condom use, probably in response to the salience of AIDS in that community and to AIDS education and considerable outreach efforts by the health educator.

The study findings illustrate that it is difficult to draw solid conclusions about the cause and effect relationship between any particular clinic characteristic and any particular outcome of interest. Examining the results in a more general manner, there are however, indications that some program guidelines can be recommended as a means of improving pregnancy prevention efforts.

Recommendations for Increasing Clinic Effectiveness

In response to results found in this evaluation and the judgments made by a panel of school-based clinic practitioners, a number of recommendations for improving the pregnancy prevention efforts of school-based clinics can be made. Many require additional funding; these recommendations are offered not as imperatives, but as suggestions for how limited resources could be best allocated for this purpose.

- **Identify and target students engaged in sexual activity** — Clinics generally do a good job of treating and counseling students who seek their services, but to have a significant impact, the clinic must seek out those at risk who are not already motivated to visit the clinic. Survey data indicate that most of the students who got pregnant in clinic schools did so without ever having visited the clinic.

- **Make contraceptives available through the clinic** — Students in clinic schools dispensing/prescribing contraceptives were more likely to seek contraceptive counseling or information from the clinic.

- **Make appointments for family planning services promptly** — Ideally these appointments should be on a walk-in basis because some teens are impulsive and may not be willing to wait a week or longer to make important decisions about sex. Effective follow-up procedures are needed as well, in order to improve contraceptive continuation rates.

- **Emphasize male responsibility** — The findings in San Francisco and Muskegon suggest that programs that include males and emphasize condoms can have a significant impact on contraceptive use. Males are less likely than females to visit the clinic, but can be reached through sports physicals, classroom activities and the media.

- **Conduct more outreach in the school** — Contraceptive use was high among sexually active students in schools where the clinic incorporated outreach efforts to provide teens with information that might be helpful in making sexual and contraceptive decisions. Where possible, clinics can work with the school to implement and participate in a comprehensive sexuality education program. Group sessions facilitated by trained clinic staff (where they are available) can provide students with more opportunities to resolve difficult personal dilemmas about sex, and at the same time, can help students become familiar with clinic staff. In addition, clinics can place posters about their reproductive health services in the school, write a regular column in the school newspaper, and make presentations at school assemblies.

- **Develop relationships with the larger community** — School-based clinics cannot effectively address any difficult social problem in isolation. As much as possible, they need to involve the broader community, including parents, youth-serving agencies, religious and other community leaders, and local media. Communities need to be made aware that many students become sexually active

before beginning high school, so that there is support for implementation of interventions such as sexuality education to delay sexual activity at the junior high (or elementary) level.

- **Increase permanent staff** — Clinic staff members are no doubt already aware of the need for more staff in order to implement the recommendations made here. Where resources are limited, this may not be possible, though where more staff are available to the students and greater staff continuity is possible, the care provided to the students will be more effective. Staff turnover reduces the continuity of the relationships that can be developed between the clinic and students. As noted by the panel of school-based clinic practitioners, this relationship is crucial to an effective reproductive health program.
- Students need to be given greater motivation to prevent pregnancies. One way this might be accomplished is by making them aware of a greater range of life options available to them, by providing training to improve job skills and by providing better job opportunities through community programs.

School-based clinics for adolescents are still in their own "adolescence." They are new; they are growing rapidly; they are developing and experimenting with a variety of creative and innovative programs to serve youth. They have a great potential, particularly to provide needed health care to youth. They also have the potential to reduce the "new morbidity" among adolescents — risk-taking behaviors. Results in this study indicate that they may have reduced smoking and drinking in some sites, and in combination with other community programs may have increased contraceptive use among sexually active students in two sites. By adopting some of the recommendations above, they may be able to reduce risk-taking behavior even more effectively. Future research should examine the effectiveness of specific programs designed to affect specific behaviors and should focus more on students who participate in those programs rather than on the entire school population.

References

1. C. Hayes, ed., *Risking the Future: Adolescent Sexuality, Pregnancy and Childbearing*, National Academy Press, Washington, D.C. 1987.
2. Office of Technology Assessment, *Healthy Children*, Congress of the United States, Washington, D.C. 1988.
3. Project Outreach, *Opinions of Michigan Citizens about Public Schools*, Schools, Fifth Annual Statewide Michigan Education Survey, Michigan State Board of Education, Lansing, 1986; random sampling by telephone of Portland school district residents, unpublished data by Decision Sciences, Inc., Portland, 1986.
4. Support Center for School-Based Clinics/CPO, *Clinic News*, Vol. 3, No. 3, 1987.
5. CPO, Survey of School-Based Clinics, Spring 1989, unpublished data.
6. Bureau of the Census/U.S. Department of Commerce, *Household and Family Characteristics — 1988*, D-20 No. 437, Washington, DC, 1989.
7. U.S. Department of Commerce, Bureau of the Census, *Marital Status and Living Arrangements — 1988*, P-20, No. 433, Washington, DC, 1988.
8. U.S. Department of Commerce, Bureau of the Census, *Poverty in the United States*, P-60, No. 163, Washington, DC, 1987.
9. U.S. Department of Commerce, Bureau of the Census, *Money, Income and Poverty Status in the U. S. — 1987*, P-60, No. 161, Washington, DC, 1988.
10. Institute for Health Policy Studies/University of California, San Francisco, *Fact Sheet on Health Insurance Covering Adolescents*, October 1988.
11. S.K. Henshaw and J. Van Vort, Teenage Abortion, Birth and Pregnancy Statistics: An Update," Family Planning Perspectives, 21:85, 1989.
12. E.F. Jones, et al, *Teenage Pregnancy in Developed Countries: Determinants and Policy Implications*, Family Planning Perspectives, 17:53, 1985.
13. L.D. Johnston, P.M. O'Malley and J.G. Bachman, *Illicit Drug Use, Smoking and Drinking by America's High School Students, College Students and Young Adults 1975-1987*, National Institute on Drug Use, Washington, D.C. 1988.
14. CPO, *Teenage Pregnancy and Too-Early Childbearing: Public Costs and Personal Consequences*, in press.
15. National Center for Health Statistics, *Advance Report of Final Mortality Statistics*, 1982.

16. National Adolescent Student Health Survey, Association for the Advancement of Health Education, Reston, VA, 1988.

17. L. Green and D. Horton, "Adolescent Health: Issues and Challenges," in T. Coates, A. Peterson and C. Perry, eds., *Promoting Adolescent Health: A Dialogue on Research and Practice*, New York, Academic Press, 1982.

18. S.R. Lovick and R.F. Stern, *School-Based Clinics: 1988 Update*, CPO/Support Center for School-Based Clinics, Houston, 1988.

19. F. Earls, L.N. Robins, A.R. Stiffman and J. Powell, "Comprehensive Health Care for High-Risk Adolescents: An Evaluation Study," *Journal of the American Public Health Association*, 79: 999-1005, 1989.

20. S.R. Lovick and W.F. Wesson, *School-Based Clinics: Update 1986*, CPO/Support Center for School-Based Clinics, Houston, 1986.

21. S.R. Lovick, *The School-Based Clinic Update 1987*, CPO/Support Center for School-Based Clinics, Houston, 1987.

22. Louis Harris and Associates, *America Speaks*, Planned Parenthood Federation of America, Inc., 1988.

23. G. Kitzi, et al, "Comparisons of 1983 and 1985 Health Survey Responses," Dec. 1985.

24. C. Galavotti and S.R. Lovick, "School-Based Clinic Use and Other Factors Effecting Adolescent Contraceptive Behavior," *Journal of Adolescent Health Care*, in press.

25. L.S. Zabin, et al, Evaluation of a Pregnancy Prevention Program for Urban Teenagers," *Family Planning Perspectives*, 18:119, 1986.

26. J.G. Dryfoos, School-Based Health Clinics: Three Years of Experience," *Family Planning Perspectives*, 20:193, 1988.

27. D. Kirby, *School-Based Clinics: An Emerging Approach to Improving Adolescent Health and Teen Pregnancy*, CPO, Washington, D.C., 1985.

28. J.L. Black, "Close up: The SBC at Martin Luther King, Jr., High School," *Contemporary Pediatrics*, Mar. 1989.

29. D. Morrison, "Adolescent Contraceptive Behavior: A Review," *Psychological Bulletin*, 98: 538, 1986.

30. Hayes, see Reference (1).

31. Johnston, et. al., see Reference (14).

32. C. Brindis, "Evaluating School-Based Clinic Program," *Clinic News*, Vol. 4, No. 2, 1988.

33. D. Kirby, "Sexuality Education: A More Realistic View of Its Effects," *Journal of School Health*, 55: 421, 1985.

APPENDIX A

Reproductive Health and Pregnancy Prevention Inventory and mean ratings of the importance of different characteristics of reproductive health programs

Repro Health (N=24)	Pregnancy Prevention (N=2)	
		Access
7.8	8.3	The clinic is open at least 20 hours during each week.
7.1	7.3	Teachers allow students to attend the clinic during school hours without hassle.
7.7	7.6	Students can go to the clinic during their free periods.
7.5	7.9	Students can go to the clinic before or after school.
8.5	9.0	If the clinic is not open during the summer months or other vacation periods, arrangements are made for alternative providers during these periods.
7.0	7.2	The clinic is open during the summer months and other vacation periods.
5.4	5.8	The clinic is sufficiently near other classrooms so that students can easily and quickly walk to the clinic.
9.0	9.0	If parental consent is required for services, the clinic has an effective method in place for obtaining parental consent.
7.5	8.0	The clinic obtains blanket parental consent (as opposed to itemized consent) for all services, including family planning.
		Medical services
7.4	7.9	Condoms are provided at the clinic.
4.5	5.3	Different kinds of condoms (e.g., both lubricated and nonlubricated) are provided at the clinic.
5.4	6.4	Condoms are available for pick-up at all times with no staff interaction required.
7.9	9.1	Birth control pills (or other medical methods) are prescribed at the clinic.
7.2	[illegible]	Birth control pills (or other medical methods) are dispensed at the clinic.
8.8	[illegible]	Pregnancy tests are available.
9.1	9.1	Pregnancy test results, both positive and negative, are given only in person.
9.4	6.3	STD tests are available.
9.3	6.1	In accordance with local incidence rates, appropriate STD tests are done on site.
9.1	6.3	STD test results, both positive and negative, are given only in person.
6.5	5.6	Prenatal care is provided to pregnant teens.
3.6	4.0	Pediatric care for infants of adolescent mothers is provided.

1= Not at all important
10= Extremely important
Source: Survey of school clinic practitioners

		Counseling services
8.9	9.1	Counseling is made available to all students on decisions about having sex and using birth control during routine visits as well as during reproductive health visits.
9.1	9.5	Abstinence and the decision to be sexually active are discussed with all new family planning clients.
9.0	9.4	Teens are strongly encouraged not to have sex without birth control unless they want to have a baby.
8.4	8.9	Minor side effects of pills (e.g. weight gain, nausea, breakthrough bleeding) are discussed with clients using or considering the use of oral contraceptives.
9.6	9.4	Clinic staff discuss decisions about sex in a way that does not alienate students.
8.2	7.6	The clinic counsels students on all legal pregnancy options, or refers students to an appropriate agency for pregnancy counseling.
8.1	7.6	Staff encourage students to discuss their decisions about sexuality with their parents.
8.4	8.4	There is counseling available for males alone.
8.0	8.6	There is counseling available for teen couples.
7.4	7.3	Parent and parent-teen counseling sessions are available.
8.0	8.6	Counseling is available without medical services.
9.3	9.3	Counselors recognize the different developmental phases of adolescence and counsel accordingly.
		Appointments
8.9	9.1	Students do not have to wait more than 1 week for a family planning appointment.
8.1	8.9	Students can walk in and normally be seen by someone (not necessarily a clinician) instead of having to wait up to a week.
7.3	8.5	Students can normally walk in and be seen for a new contraceptive visit (instead of having to wait up to a week).
7.3	8.8	Students can walk in and be seen for a continuing contraceptive visit (instead of having to wait up to a week).
8.6	8.7	Students can walk in and be seen for a pregnancy test (instead of having to wait up to a week).
8.8	8.7	Students are given at least 45 minutes for their first family planning visit.
		Protocols
9.0	8.3	There are established protocols for all medical procedures that have been approved by a physician.
8.7	9.2	Whenever staff conduct a general health assessment on any client, questions about sexual activity and use of birth control are asked and follow-up services are provided, as appropriate.
8.7	8.3	Whenever reproductive health services are provided, a general health assessment is obtained, including the adolescent's own health concerns.
7.7	8.5	An assessment of general behavioral risk-taking is done as a part of reproductive health services.
5.8	5.5	Students are given the choice of having a companion present during a physical examination.
7.4	8.3	Contraceptive compliance is checked at every visit regardless of the purpose of the visit.
8.7	9.0	If a student is having sex but not using birth control, that student is promptly given an appointment for counseling and/or contraceptive care, as appropriate.

8.1	9.0	Frequency of family planning visits is determined on the basis of individual need. At a minimum, monthly follow-up is done until the client is using his/her selected method appropriately.
8.5	9.0	If a patient is having problems with a particular family planning method, another method is dispensed as appropriate.
8.1	9.2	A reasonable protocol is in place for students who use condoms to come back for continued counseling and supply pick-up or referral.
7.9	8.7	Case management and conferencing is done for all family planning clients who appear to be inconsistent users.
7.9	9.0	The clinic has a system in place for reminding clients of upcoming appointments. This system maintains the confidentiality of the purpose of the visit.
8.1	9.2	When a student misses a family planning appointment, the clinic has a tickler system for recontacting the student.
8.7	8.9	If pills or other methods of birth control are not dispensed, the clinic refers students to a particular provider that does dispense.
8.3	6.8	If pills or other methods of birth control are not dispensed, clinic staff find out whether all clients get their methods of birth control offsite, as referred.
6.1	8.2	A physical examination is not required for non-prescription methods.
8.1	9.2	For those students who are getting non prescription methods and who have not had a physical examination, getting a physical examination is encouraged.
		Confidentiality
9.3	9.2	Students understand that their parents will not be notified about visits for family planning without the students' consent.
9.1	9.4	Going to the clinic does not indicate that the purpose of the visit is for family planning (e.g., students know that many students go to the clinic for other purposes and students do not know that visits during particular hours means that the purpose is for family planning).
9.5	9.1	Other students do not work in the clinic and see students' records.
9.5	9.3	Students know that their clinic records will not be shared with the school authorities.
9.0	9.0	The clinic uses a variety of ways to communicate to students that family planning services are confidential (e.g., signs/posters in the waiting room, confidentiality is discussed in the counseling room, or a statement about confidentiality is included on the intake form).
		Outreach
8.6	8.6	Staff give presentations in school classrooms to enhance visibility and acceptance on campus.
9.0	8.9	In classroom presentations, staff describe the full range of clinic services, including the reproductive health services.
8.0	7.9	Staff put up posters, give information to students during school registration, have columns in the school newspaper, or use some other method of adequately informing the students about the clinic's family planning services.
8.7	8.8	Clinic staff coordinate with school staff, especially the school nurse, teachers, and administrative staff, to facilitate referral and follow-up.

		Sex education in the classroom
8.5	8.7	Within the school, there is a sound sex education program that covers the major topics in sexuality: decisions about abstinence and having sex, birth control, the probability of pregnancy, and STD.
7.8	8.6	Within the school, there is a sex education program that provides considerable role playing and practice in saying no to sexual activity and insisting on the use of birth control when planning to have sex.
7.6	7.8	Clinic staff provide or assist with the sex education programs in the classroom.
		Group sessions
6.2	6.7	There are group rap sessions on sexuality available to students during or after school either in the clinic or linked with the clinic.
6.7	7.5	The sizes of these sessions are kept small so that students have ample opportunity to ask questions and to discuss their feelings about sexuality.
6.6	7.4	These are sufficiently well organized and advertised so that over time many students participate in them.
		Staff
7.8	8.9	Female clinicians and counselors are available.
7.4	7.8	Male clinicians and counselors are available.
9.9	9.8	Staff have genuine warmth, empathy, openness, concern, and respect for teens. They like to work with teens and have excellent rapport with teens.
8.4	8.2	Staff have previous experience working with teens.
8.5	8.6	Staff receive special training in adolescent development and medicine appropriate for their position.
8.8	8.7	Clinicians and counselors are given periodic in-service training.
8.6	8.7	Staff have training in sexuality.
7.8	8.3	All clinicians have training in pelvic assessment.
5.8	6.6	There is direct staff-client observation of counselors on at least a quarterly basis.
		Waiting room
7.8	7.8	The waiting room is attractive and appealing to teenagers.
7.8	8.1	The waiting room has pamphlets on sexual decision-making, contraception, pregnancy, STDs, and other family planning themes.
7.2	7.5	The waiting room has posters on sexual decision-making, contraception, pregnancy, STDs, or other family planning themes.
		Counseling and examination rooms
9.1	9.2	Counseling and examination rooms are reasonably comfortable and private, allowing for confidential services.
5.5	5.2	Stirrups on examination tables are covered.
6.3	6.2	Specula are kept warm.
		Materials
8.0	8.5	There are pamphlets on the decision to have or abstain from sex.
8.1	8.7	There are pamphlets on contraception.
8.3	8.0	There are pamphlets on STDs and AIDS.

7.6	8.2	There are pamphlets of each type appropriate for both males and females.
7.9	8.3	There are culturally-sensitive pamphlets on all topics, as appropriate.
7.9	7.9	The clinic has a variety of visual aides for counseling and education such as male and female pelvic models, samples of all family planning methods, and hand mirrors for observing the genitals during pelvic examinations.
		Costs
9.1	9.3	Services at the clinic are free or sufficiently low so that cost is not a barrier to access for students.
9.0	9.6	Pills, condoms, and other methods of birth control are free or cost only a small amount.
8.5	8.7	If the clinic charges for specific services (e.g., certain lab tests) or has an annual users' fee, partial payment is allowed when students cannot pay the full charge.
8.4	8.8	Sliding fee scales are used in clinics that charge for services.
8.1	8.6	Referral agencies provide free or low-cost care to students, including prescription drugs and supplies.
		Community relations
7.8	7.0	Clinic tours are available to students, parents, school staff and community members upon request.
8.0	7.0	Staff give presentations to parent groups and other community groups.
7.6	7.5	The clinic has a student advisory board, or some other procedure for getting input from the students on how to improve the clinic.
9.5	9.3	The clinic has a good reputation among the students.
8.9	8.5	The clinic is well accepted and supported by the school, teachers and administration.
8.3	7.4	The clinic has an adult advisory board, or some other procedure for getting input from parents and adults in the community on how to improve the clinic.
8.7	8.3	The clinic has the support of the parents and community more generally.
8.9	8.7	The provision of quality health care by the clinic is not unduly limited by school, community, or state regulations.
		Evaluation and assessment
8.3	8.5	The clinic has a method established for determining how many teens are getting pregnant in the school each year and how many of the clinic's patients are getting pregnant.
7.8	8.6	The clinic does enough follow-up on pregnant teens to know the major reasons why the pregnant teens got pregnant.
8.8	9.0	The results of these assessments are used to improve the program.

APPENDIX B

School Health Survey*

This survey is being done to help us understand what health services are most needed by the students of this school and to measure the success of the health center. It is also part of an important national study of schools.

Filling out this questionnaire is up to you.

You do not have to, but you will help us a lot if you complete it.

Do NOT put your name anywhere on these pages.

We want your answers to be secret.

No one (not even your teacher) will know that these answers are yours.

Write your answers directly on this questionnaire.

Do not put them on a separate sheet of paper.

Your answers are important.

Please answer each question carefully and honestly.

Thank You

* This composite questionnaire contains all the questions discussed in this report. However, the questionnaire was revised several times during the project and consequently some questions for specific sites contained slight rewording of these questions and some questionnaires contained some additional questions unique to that site that were not analyzed in this report. Questionnaires administered at the comparison schools did not include any of the questions about the clinic.

1. Are you male or female?

___ male

___ female

2. How old are you?

___ years

3. What grade are you in?

___ 9

___ 10

___ 11

___ 12

4. When did you first come to this high school?

___ Fall, 1984

___ Spring, 1985

___ Fall, 1985

___ Spring, 1986

___ Fall, 1986

___ Spring, 1987

___ Fall, 1987

___ Spring, 1988

5. What was your overall grade average on your last report card?

___ A

___ B

___ C

___ D

___ F

6. Are you:(Check only one.)

___ Black

___ White

___ Hispanic, Mexican American, Puerto Rican, or Spanish

___ Asian or Oriental

___ Native American or American Indian

___ Other

7. Whom do you live with now? (Check all that apply.)

___ mother

___ stepmother

___ father

___ stepfather

___ grandfather

___ grandmother

___ other relative

___ other adults

___ other

8. Many families get money from different places. Where does the money in your household come from?

(check all that apply)

___ unemployment

___ Social Security

___ welfare or AFDC

___ job or work

___ other

___ don't know

9. Does anyone in your house get food stamps?

___ yes

___ no

___ don't know

10. Is anyone in your house in the free lunch program at school?

___ yes

___ no

___ don't know

11. Do you like yourself?

___ all the time

___ usually

___ sometimes

___ not very often

___ almost never

12. How healthy do you think you are?

___ very healthy

___ pretty healthy

___ not very healthy

___ not at all healthy

13. Do you have friends or relatives that you can turn to for help when something is troubling you?

___ yes, sometimes

___ no

___ yes, sometimes

___ yes, usually

14. How far do you think you will go in school?

___ quit high school

___ finish high school

___ go to vocational school or get other training

___ go to college

15. During the LAST FOUR WEEKS, about how many days did you miss because you were sick?

___ days

16. During the LAST FOUR WEEKS, about how many days have you skipped or cut school?

___ days

17. When did you LAST go to a doctor?

___ during the last 12 months
___ about 1 or 2 years ago
___ about 3 to 4 years ago
___ more than 4 years ago

18. When did you LAST go to a dentist?

___ during the last 12 months
___ about 1 or 2 years ago
___ about 3 to 4 years ago
___ more than 4 years ago

19. Where did you go the LAST TIME you were sick or injured?

___ school health center
___ doctor's office
___ county health department
___ emergency room at hospital
___ other

20. During the last 12 MONTHS, have you ever needed medical care and not gotten it?

___ yes (Go to Question 21a.)
___ no (Go to Question 22.)

21. Why? (Check all that apply.)

___ Medical care was not available when it was needed.
___ It cost too much money.
___ I didn't know where to go.
___ I didn't have a way to get there.
___ The hours were not convenient.
___ I had to wait too long to get an appointment.
___ I didn't like the staff.
___ My visit would not be confidential (secret).
___ They didn't have a special clinic for teenagers.
___ I just didn't get around to it.

22. If you felt sick or needed medical care, do you know where you would go?

___ yes (Go to Question 22a.)
___ no (Go to Question 23.)
___ Don't know (Go to Question 23.)

22a. Where would you go?

___ school health center
___ doctor's office
___ county health department
___ emergency room at hospital
___ other

23. During the LAST 12 MONTHS, how many times, if any, were you treated at an emergency room or hospital?

___ times

24. During the LAST 12 MONTHS, how many nights did you stay in a hospital?

___ nights

25. When were you LAST tested for:

Hypertension? (high blood pressure)

___ during the last year
___ more than one year ago
___ never
___ don't know

Diabetes?(sugar)

___ during the last year
___ more than one year ago
___ never
___ don't know

Scoliosis? (curved spine)

___ during the last year
___ more than one year ago
___ never
___ don't know

Sickle Cell?

___ during the last year
___ more than one year ago
___ never
___ don't know

Anemia?(low blood) (iron)

___ during the last year
___ more than one year ago
___ never
___ don't know

26. During the LAST YEAR have you had:

Your blood tested?

___ yes
___ no
___ don't know

Your urine tested?

___ yes

___ no

___ don't know

A physical exam?

___ yes

___ no

___ don't know

A troat culture?

___ yes

___ no

___ don't know

The questions below ask about personal matters in your life. REMEMBER THAT NO ONE WILL KNOW THESE ANSWERS ARE YOURS.

27. Some teenagers have had sex and others have not. Have you ever had sexual intercourse?

___ yes

___ no

IF YES, continue with Question #28.

IF NO, skip to Question #40.

28. How old were you when you first had sex?

___years old

29. During the LAST FOUR WEEKS how many times did you have sex?

___ times

30. Now think carefully about the LAST TIME you had sex. Did you or your partner use withdrawal or rhythm or any kind of birth control?

___ yes

___ no

30a. IF YES:What did you use?

(Check only one.)

___ rubbers and pills together

___ rubbers and foam together

___ rubbers alone

___ pills alone

___ rhythm

___ withdrawal (pulling out)

___ foam OR diaphragm OR sponge OR suppositories

___ other(what? _____)

30b. IF YES:Where did you get it?

___ drug store

___ school health center

___ doctor

___ health department

___ friend or relative

___ other (where? _____)

___ does not apply (used withdrawal or rhythm)

31. If you have ever used birth control, where do you normally get it?

___ school health center

___ drug store

___ doctor

___ health department

___ friend or relative

___ other (where? _____)

___ does not apply (used withdrawal or rhythm)

32. Sometimes teenagers have sex without using any kind of birth control.

If you have ALWAYS used birth control when you had sex, skip to Question #33.

If you have had sex before WITHOUT using birth control, please check ALL the reasons below that apply to you.

___ I didn't know about birth control.

___ I didn't care if I got pregnant (got my girlfriend pregnant).

___ I wanted to get pregnant (get my girlfriend pregnant).

___ I just didn't think I would get pregnant (get my girlfriend pregnant).

___ I thought I (my girlfriend) was too young to get pregnant.

___ I didn't think I had sex often enough to get pregnant (get my girlfriend pregnant).

___ Because I didn't expect to have sex, it came as a surprise.

___ I thought it was morally wrong to use birth control.

___ I thought it was wrong to plan for sex.

___ I thought birth control was my partner's responsibility.

___ My boyfriend (my girlfriend) didn't want me to use birth control.

___ I was waiting until I was closer to my boyfriend (my girlfriend).

___ I thought my parents had to be told.

___ I was afraid my family would find out if I used birth control.

___ I thought it was dangerous to use birth control.

___ I thought you weren't allowed to get birth control until you were older.

___ I thought it cost too much.
___ I didn't know where to go to get birth control.
___ It was too difficult to get all the way to a clinic.
___ I felt uncomfortable going to a strange clinic.
___ I was afraid to be examined.
___ I thought using birth control would reduce the physical pleasure of sex.
___ I thought birth control would be messy to use.
___ I just didn't get around to it.
___ Other (What?_____)

32a. Now, go back and circle the one most important reason why you did not use birth control.

33. Have you ever been pregnant (or gotten a girl pregnant)?

___ yes
___ no

34. Have you been pregnant (or gotten a girl pregnant) during the last 12 months?

___ yes
___ no

35. Have you ever had an abortion (or gotten a girl pregnant who then had an abortion)?

___ yes
___ no

36. Have you had an abortion (or gotten a girl pregnant who then had an abortion) during the last 12 months?

___ yes
___ no

37. Have you (or a girl you got pregnant) ever given birth to a child?

___ yes
___ no

37a. DURING THE PAST 12 MONTHS, have you (or a girl you gotpregnant) given birth to a child?

___ yes
___ no

37b. DURING THE PAST 12 MONTHS, have you (or a girl you got pregnant) given birth to a baby weighing less than 5-1/2 pounds?

___ yes
___ no

38. Did you get birth control protection from the school health center before you got pregnant (or got a girl pregnant)?

___ yes
___ no

39. Have you ever had VD (STD)?

___ yes
___ no

39a. IF YES:Check which one:

___ herpes
___ gonorrhea (clap)
___ chlamydia
___ syphilis
___ other (what?_____)
___ don't know

40. During the PAST 12 MONTHS, have you had VD (STD)?

___ yes
___ no

41. Think back to the first time you got pregnant (or got a girl pregnant).

Before you got pregnant (or got a girl pregnant), did you ever go to the school clinic for any reason?

___ yes
___ no

42. Did you ever talk with anyone in the clinic about birth control protection before you got pregnant (or got a girl pregnant)?

___ yes
___ no

43. Did you get birth control protection from the clinic before you got pregnant (or got a girl pregnant)?

___ yes
___ no

Now we would like to ask you a few questions about the school health center.

44. Have you ever been to the school health center for any reason?

___ yes (Go to Question 45.)
___ no (Go to Question 53.)

45. How many times have you been to the school health center for any reason?

___ times

46. Which services have you used? (Check all that you have used.)

___ counseling
___ treatment for sickness
___ first aid
___ female exams

___ information about birth control
___ birth control
___ pregnancy testing
___ special care for pregnant women (prenatal care)
___ WIC
___ VD tests
___ nutrition education
___ physical exams for sports
___ dental services
___ shots (immunizations)
___ suggestions for help from other agencies

47. How satisfied were you with the services you received at the school health center?

___ very satisfied
___ somewhat satisfied
___ somewhat dissatisfied
___ very dissatisfied

48. How comfortable are you going to the school health center?

___ comfortable
___ somewhat uncomfortable
___ very uncomfortable

49. Do you feel your visits are secret (no one but the clinic staff will know what you talked about)?

___ yes
___ no

50. Do you intend to use the school health center in the future?

___ yes
___ no

51. Do you consider the school health center your regular source of health care?

___ yes
___ no

52. Why did you use the school health center?(Check all that apply.)

___ I feel it's a part of my school and I can trust it.
___ It's easy to get to.
___ It's the only clinic I know about.
___ It has the best hours.
___ It's the cheapest place I know about.
___ The people there really care about young people.
___ The people there don't tell my parents I come.
___ My friends go there.
___ Other

_____.

52a. Now go back and circle the one most important reason why you used the school health center.

SKIP THE NEXT QUESTION: GO TO QUESTION #54.

53. If you have NOT used the school health center for any reason, why not?

(Check all the answers that apply.)

___ I was healthy and did not need the health center.
___ I did not need the health center for birth control.
___ I wanted to go on with a clinic I'd been using before.
___ I didn't know about the school health center.
___ I didn't know where the school health center was.
___ I didn't like the staff at the health center.
___ I was not comfortable there.
___ I was afraid teachers would find out.
___ I was afraid my friends would find out.
___ I was afraid my parents would find out.
___ My friends told me the school health center was not any good.
___ I thought the health center cost too much money.
___ The school health center is too close to school.
___ The health center is too far from where I live.
___ The health center did not have the kind of health care that I wanted.
___ I just didn't get around to it.
___ I didn't want to miss class (What?_____)
___ Other

53a. Now go back and circle the one most important reason why you did not use the school health center.

54. How often, if ever, do you normally do the things below?

	Never or rarely	Once in a while	About once a week	Several times a week	Almost every day	Several times a day
Brush your teeth	____	____	____	____	____	____
Floss your teeth	____	____	____	____	____	____
Eat breakfast	____	____	____	____	____	____
Eat fruits and vegetables	____	____	____	____	____	____
Eat breads, grains, and cereals	____	____	____	____	____	____
Lose your appetite	____	____	____	____	____	____
Drink milk or eat milk products	____	____	____	____	____	____
Eat meat or fish	____	____	____	____	____	____
Eat candy, sweets,potato chips, soft drinks, or other snack food	____	____	____	____	____	____
Drink beer or wine	____	____	____	____	____	____
Drink hard liquor	____	____	____	____	____	____
Smoke cigarettes	____	____	____	____	____	____
Drink alcohol and take other drugs at the same time	____	____	____	____	____	____
Smoke marijuana or hash	____	____	____	____	____	____
Take uppers or downers (e.g.speed)	____	____	____	____	____	____
Take acid, LSD, PCP or other hallucinogenic drugs	____	____	____	____	____	____
Take other illegal drugs	____	____	____	____	____	____
Feel depressed or anxious	____	____	____	____	____	____
Get at least 30 minutes of good exercise (sports,jogging, biking)	____	____	____	____	____	____
Wear seatbelts when riding in a car	____	____	____	____	____	____
Drive a car	____	____	____	____	____	____
Drive a car more than 10 miles per hour over the speed limit	____	____	____	____	____	____
Drive a car when you have been drinking	____	____	____	____	____	____
Ride in a car more than 10 miles per hour over the speed limit	____	____	____	____	____	____
Ride in a car when the driver has been drinking	____	____	____	____	____	____
Feel angry or mad	____	____	____	____	____	____
Get in a physical fight with someone	____	____	____	____	____	____
Carry a knife or other weapon	____	____	____	____	____	____
Get at least 7 hours of sleep	____	____	____	____	____	____
Have a hard time going to sleep at night	____	____	____	____	____	____

THANKS VERY MUCH FOR FILLING OUT THIS QUESTIONNAIRE

APPENDIX C

Test/retest reliability coefficients for selected questionnaire items.*

Items	Percentage agreement	Correlation coefficient
Background characteristics (N=87)		
Sex	100	
Race	99	
Age	92	
Grade level	95	
First semester at this high school	83	
Grade point average	83	
Number of parents student lives with	98	
Family receives food stamps	97	
Family member in free lunch program	98	
Future school plans	87	
Absenteeism (N=85)		
Number of days sick from school in last four weeks	49	.59
Number of days skipped school in last four weeks	63	.78
Receipt of health care (N=85)		
Timing of last visit to a dentist	80	
Timing of last visit to a doctor	81	
Location of last doctor's visit	64	
Timing of last physical exam	82	
Timing of last blood test	84	
Timing of last urine test	80	
Number times treated in emergency room last year	79	
Number of nights spent in hospital last year	96	
Received medical care when sick or hurt	92	
Sexual activity		
Ever had sexual intercourse (N=85)	95	
Age when first had sex (N=51)	75	.83
Frequency of sex in last 4 weeks (N=50)	50	.74
Use of birth control during last sex (N=52)	85	
Kind of birth control used during last sex (N=30)	70	
Source of birth control (N=31)	68	
Pregnancy (N=53)		
Ever been pregnant	87	
Been pregnant during last 12 months	96	
Ever had an abortion	96	
Had abortion during the last 12 months	96	
Ever given birth	98	
Had child during the last 12 months	98	

*Source: Test/retest questionnaires.

Sexually transmitted disease (N=45)		
Ever had STD	96	
Ever used clinic (N=86)		
Ever been to SBC	94	
Number of times clinic used (N=61)		
Times been to SBC	48	.81
Clinic services used by student (N=66)		
Treatment of minor illness/injury	83	
Referral for serious illness/injury	95	
Routine physical exam	80	
Sports physical	85	
Immunizations	97	
Laboratory tests or screenings	80	
STD test	100	
Treatment for chronic problems	99	
Treatment for skin problems	95	
Pregnancy test	100	
Prescription for medicine	92	
Prescription for birth control	100	
Referral for dental care	97	
Nutrition/health education	95	
Counseling	92	
Weight management program	100	
Drug/Alcohol education	100	
Other reasons	91	
Frequency of health and risk-taking behaviors (N=85)		
Drinking beer/wine	76	.72
Drinking hard liquor	88	.81
Smoking cigarettes	95	.90
Smoking pot/hash	94	.72
Taking acid/LSD/PCP/hallucinogenic drugs	99	.95
Taking illegal drugs	98	.70
Multi-item health and risk-taking scales (N=85)		
Dental care	65	.65
Nutrition	58	.60
Alcohol consumption	80	.81
Illegal drugs	95	.73
Stress, anger and depression	67	.70

APPENDIX D Clinic utilization by background characteristics and site[a]

	Gary				Muskegon				Jackson				Dallas				Quincy (Year 2)				San Francisco (Year 2)			
	N	% Ever Used	Mean # of Times	Mean # of Serv	N	% Ever Used	Mean # of Times	Mean # of Serv	N	% Ever Used	Mean # of Times	Mean # of Serv	N	% Ever Used	Mean # of Times	Mean # of Serv	N	% Ever Used	Mean # of Times	Mean # of Serv	N	% Ever Used	Mean # of Times	Mean # of Serv
Background characteristics																								
Gender																								
Females	383	61	2.0	1.7	265	86[c]	5.1[c]	1.3[c]	191	70	5.2	2.5[b]	284	84	5.2	3.1[d]	339	73	4.7[d]	2.1	217	5	1.5	.9
Males	265	59	1.7	1.5	209	76[c]	3.1[c]	.9[c]	118	64	3.6	1.8[b]	208	81	7.0	1.7[d]	324	70	3.3[d]	1.3	205	44	1.3	.7
Race/ethnicity																								
Blacks	630	60	1.9	1.6	422	83[c]	4.4	1.1[b]	306	68	4.6	2.3	374	84	6.6[b]	2.7d	607	74d	4.2[b]	1.8[d]	72	71[d]	2.9[d]	1.4[d]
Whites (San Francisco only)																					20	35[d]	1.4[d]	.5[d]
Hispanics (San Francisco only)																					129	49[d]	1.3[d]	.8[d]
Filipino (San Francisco only)																					166	40[d]	.9[d]	.6[d]
Other	16	71	2.2	1.8	34	64[c]	2.4	.7[b]	3	67	2.0	1.3	118	78	4.0[b]	1.7[d]	54	41d	2.3[b]	.9[d]	3	42[d]	1.5[d]	.9[d]
Age																								
14	62	53	1.4	1.1[d]	67	61	1.8[c]	.4[d]	0	—	—	—	17	88	3.0	1.5	0	—	—	—	12	62	1.1	.8
15	165	61	1.7	1.4[d]	106	81	3.4[c]	1.1[d]	46	57	3.5[b]	1.9[b]	93	83	4.9	2.4	116	66	3.0[c]	1.4[d]	76	43	1.2	.7
16	141	53	1.7	1.4[d]	103	87	3.9[c]	1.2[d]	75	57	3.1[b]	1.7[b]	139	81	6.9	2.4	208	70	3.3[c]	1.4[d]	162	52	1.6	.9
17	161	66	2.3	2.0[d]	101	85	5.3[c]	1.3[d]	105	71	5.0[b]	2.2[b]	108	82	5.7	2.6	237	73	4.5[c]	1.9[d]	118	48	1.3	.8
18+	116	63	2.2	1.8[d]	62	89	7.2[c]	1.3[d]	83	78	6.0[b]	2.9[b]	88	85	6.9	2.8	87	79	5.8[c]	2.2[d]	44	43	1.0	.6
Grade point average																								
0	6	67	1.0	2.2	8	100	4.0	1.3	0	—	—	—	7	88	7.4	2.9	5	40	2.8	1.2	7	43[b]	.9	.9
1	62	51	1.2	1.3	70	81	3.6	1.0	14	64	4.5	2.1	16	65	2.5	1.3	51	69	5.6	1.9	34	68[b]	1.7	1.1
2	321	64	2.1	1.7	243	84	4.1	1.2	151	66	4.2	2.3	174	83	7.3	2.3	372	71	3.7	1.6	134	54[b]	1.8	1.0
3	226	57	1.9	1.6	110	77	4.7	1.0	128	70	4.7	2.2	209	85	5.7	2.7	200	75	4.4	2.0	174	43[b]	1.0	.6
4	23	44	1.1	1.0	36	81	5.0	1.2	12	67	6.3	2.0	40	82	3.5	2.6	33	75	3.7	1.7	65	42[b]	1.3	.7
Future school plans																								
Quit high school	5	40	.8	.3	1	100	1.0	0.0	0	—	—	—	5	60	6.2	3.0	1	—	—	—	1	—	—	—
Finish high school	203	64	1.8	1.7	205	86	3.7	1.1	95	67	5.0	2.1	267	83	6.2	2.4	241	71	3.8	1.6	84	41	1.0	.6
Go to college or get additional training	453	58	1.9	1.6	265	79	4.6	1.1	213	68	4.2	2.2	145	85	5.7	2.6	414	72	4.2	1.8	335	50	1.5	.8
Number of parents in home																								
0	59	59	3.0[b]	1.7	53	89	6.8[c]	1.4	42	60	4.5	2.4	52	86	4.4	1.9	80	85[c]	4.6	1.9[b]	46	49	1.4	1.1
1	324	58	1.8[b]	1.5	240	81	3.3[c]	1.0	179	65	4.3	2.2	208	80	6.5	2.5	283	73[c]	4.8	1.9[b]	152	49	1.6	.8
2	280	62	1.8[b]	1.7	163	80	4.7[c]	1.1	88	77	5.0	2.3	190	86	5.9	2.5	300	67[c]	3.1	1.5[b]	224	47	1.3	.7
Family receipt of food stamps																								
No	396	59	1.8	1.6	316	83	4.3	1.1	117	67	4.2	2.1	330	84	5.8	2.5	551	70	3.8[c]	1.6[d]	366	49	1.4	.8
Yes	240	61	2.0	1.5	147	81	4.3	1.2	118	70	5.2	2.5	104	81	7.1	2.5	102	79	5.6[c]	2.4[d]	27	41	1.3	.8
Family member in free lunch program																								
No	405	59	1.9	1.6	180	82	4.5	1.0	62	74	5.5	2.3	180	83	5.7	2.4	355	70	3.7	1.5[c]	330	52[c]	1.5	.9[c]
Yes	244	61	1.9	1.6	292	82	4.1	1.2	244	66	4.3	2.2	265	83	6.1	2.5	304	73	4.4	1.9[c]	73	33[c]	.8	.5[c]
Health insurance in the family																								
No					28	87	3.9	1.4					49	81	5.4	2.4[b]					62	37[b]	.8	.6[c]
Yes					369	82	4.3	1.1					324	85	6.5	2.7[b]					218	55[b]	1.6	1.0[c]
Don't know					57	77	3.7	.9					70	77	4.6	1.8[b]					142	43[b]	1.3	.6[c]

a Based on Student Health Survey data.
b $p < 0.05$, based on t-test of significance.
c $p < 0.01$, based on t-test of significance.
d $p < 0.001$, based on t-test of significance.

APPENDIX E | Mean number of clinic services used, by whether specific reason for clinic use was checked by respondent (clinic users)[a]

Reason	Gary		Muskegon		Jackson		Dallas		Quincy Year #2		San Francisco	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Part of school -- can trust it	3.2 (223)	2.2[d] (173)	1.5 (176)	1.2[b] (212)	3.5 (135)	3.0 (70)	3.5 (209)	2.8[c] (202)	2.7 (291)	2.0[d] (230)	2.0 (98)	1.4[d] (92)
Easy to get to	3.2 (209)	2.3[d] (186)	1.6 (160)	1.2[d] (228)	3.7 (131)	2.7[c] (74)	3.6 (253)	2.5[d] (158)	2.6 (279)	2.2[b] (242)	1.9 (121)	1.4[c] (69)
Staff really cares	3.2 (232)	2.1[d] (164)	1.6 (211)	1.0[d] (177)	3.7 (126)	2.8[c] (79)	3.7 (176)	2.8[d] (235)	2.9 (293)	1.8[d] (228)	2.1 (86)	1.3[d] (104)
Cheapest clinic	3.1 (132)	2.6[b] (264)	2.2 (88)	1.1[c] (300)	3.9 (65)	3.1 (140)	4.3 (61)	3.0[b] (350)	2.7 (137)	2.3[b] (384)	3.2 (35)	2.9 (149)
Parents aren't told	3.4 (74)	2.6[b] (322)	2.0 (97)	1.1[d] (291)	4.2 (47)	3.1[b] (158)	4.2 (41)	3.0[c] (370)	2.7 (67)	2.3 (454)	2.3 (36)	1.6[b] (154)
Friends go there	3.8 (39)	2.6 (357)	2.0 (36)	1.3[b] (352)	3.6 (41)	3.3 (164)	3.7 (50)	3.1 (361)	2.6 (48)	2.4 (473)	2.2 (29)	1.6 (161)
Has best hours	3.0 (47)	2.7 (349)	2.5 (30)	1.3[d] (358)	4.2 (37)	3.2[b] (168)	4.4 (23)	3.1 (388)	3.4 (40)	2.3[d] (481)	2.7 (30)	1.5[d] (160)
Only known clinic	2.9 (30)	2.7 (366)	2.2 (21)	1.3[b] (367)	3.9 (12)	3.3 (193)	3.0 (43)	3.2 (368)	1.9 (15)	2.4 (506)	2.2 (17)	1.6 (173)
Other	2.5 (44)	2.8 (351)	1.1 (74)	1.4 (314)	2.9 (16)	3.4 (189)	2.3 (29)	3.2[b] (382)	2.3 (95)	2.4 (426)	1.7 (19)	1.7 (171)

a Based on Student Health Survey data.

b $p < 0.05$, based on t-tests of significance.

c $p < 0.01$, based on t-tests of significance.

d $p < 0.001$, based on t-tests of significance.

APPENDIX F | Mean number of times clinic visited by whether specific reason for clinic use was checked by respondent (clinic users only)[a]

Reason	Gary		Muskegon		Jackson		Dallas		Quincy (Year #2)		San Francisco	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Part of school — can trust it	3.4 (220)	2.9 (162)	5.1 (167)	5.3 (200)	6.9 (122)	7.6 (64)	8.7 (189)	5.9[b] (177)	6.3 (246)	5.3 (210)	3.3 (96)	2.6 (88)
Easy to get to	3.5 (205)	2.9 (177)	6.3 (151)	4.4 (216)	8.0 (120)	5.6[b] (66)	8.6 (226)	5.4[c] (140)	6.2 (248)	5.4 (208)	3.1 (116)	2.7 (68)
Staff really cares	3.6 (226)	2.6[c] (156)	6.1 (201)	4.1[b] (166)	7.0 (113)	7.4 (73)	9.6 (156)	5.7[c] (210)	7.2 (252)	4.2[c] (204)	3.6 (84)	2.4[b] (100)
Cheapest clinic	3.5 (130)	3.1 (252)	8.1 (82)	4.4[b] (285)	8.2 (58)	6.7 (128)	10.0 (57)	6.9 (309)	6.8 (124)	5.5 (332)	3.2 (35)	2.9 (149)
Parents aren't told	4.0 (72)	3.0[b] (310)	5.9 (89)	5.0 (278)	9.4 (44)	6.5 (142)	9.4 (40)	7.1 (326)	7.8 (54)	5.6[b] (402)	3.8 (34)	2.8 (150)
Friends go there	4.4 (38)	3.1 (344)	5.5 (37)	5.2 (330)	5.5 (38)	7.6[b] (148)	9.7 (46)	7.0 (320)	6.4 (45)	5.8 (411)	4.1 (28)	2.7[b] (156)
Has best hours	3.4 (48)	3.2 (334)	8.3 (27)	5.0[b] (340)	9.8 (31)	6.6 (155)	9.6 (22)	7.2 (344)	7.9 (35)	5.7 (421)	3.6 (27)	2.8 (157)
Only known clinic	3.4 (30)	3.2 (352)	5.5 (21)	5.2 (346)	6.3 (12)	7.2 (174)	8.3 (37)	7.3 (329)	5.2 (14)	5.9 (442)	2.7 (16)	3.0 (168)
Other	2.8 (41)	3.3 (340)	4.4 (67)	5.4 (300)	6.1 (14)	7.2 (172)	10.6 (28)	7.1 (338)	5.0 (80)	6.0 (376)	3.7 (16)	3.0 (168)

a Based on Student Health Survey.

b $p < 0.05$, based on t-tests of significance.

c $p < 0.01$, based on t-tests of significance.

d $p < 0.001$, based on t-tests of significance.